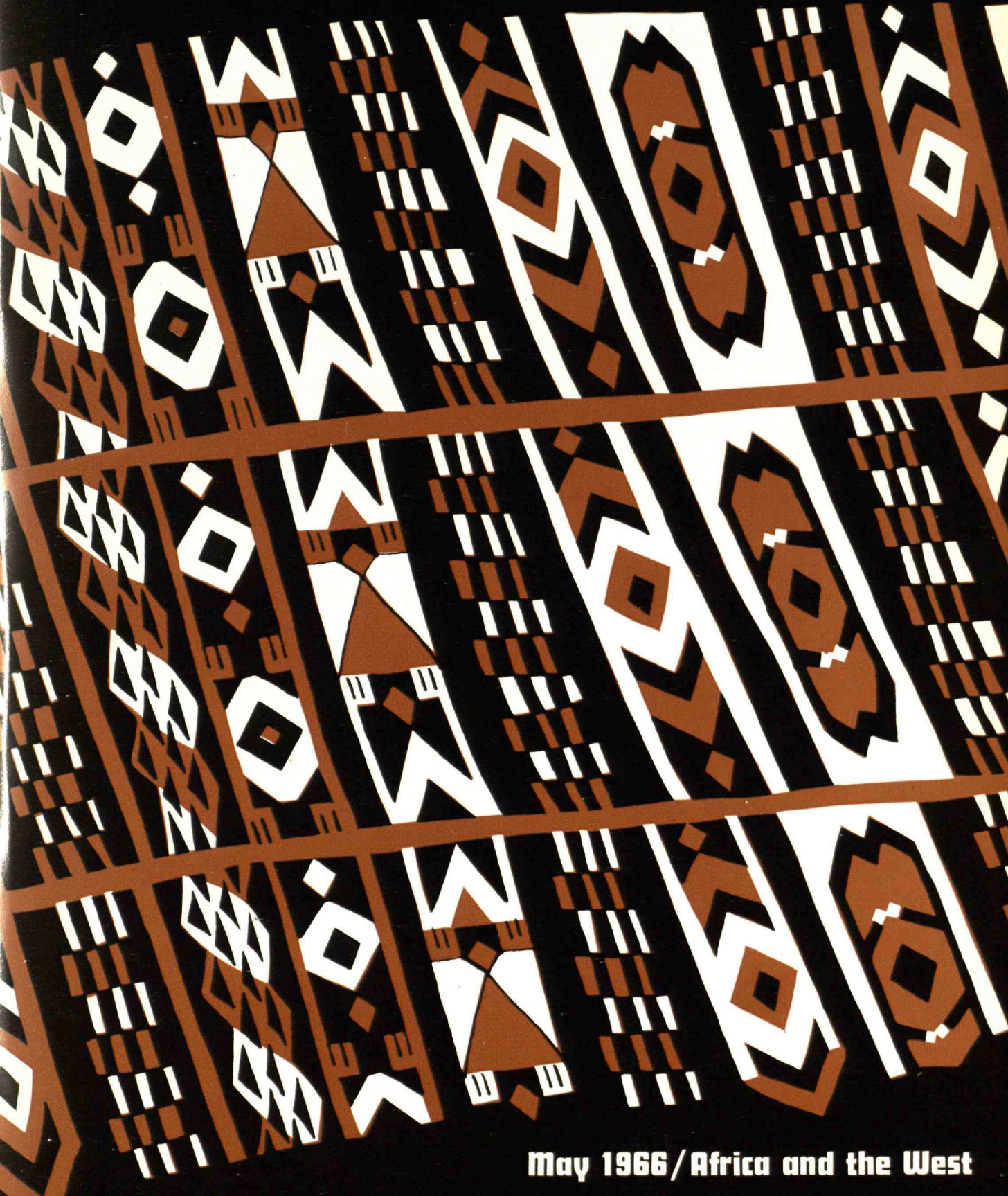


# Technology Review

Edited at the Massachusetts Institute of Technology



May 1966 / Africa and the West

# technology review

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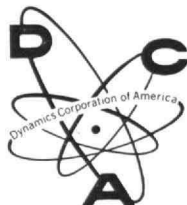
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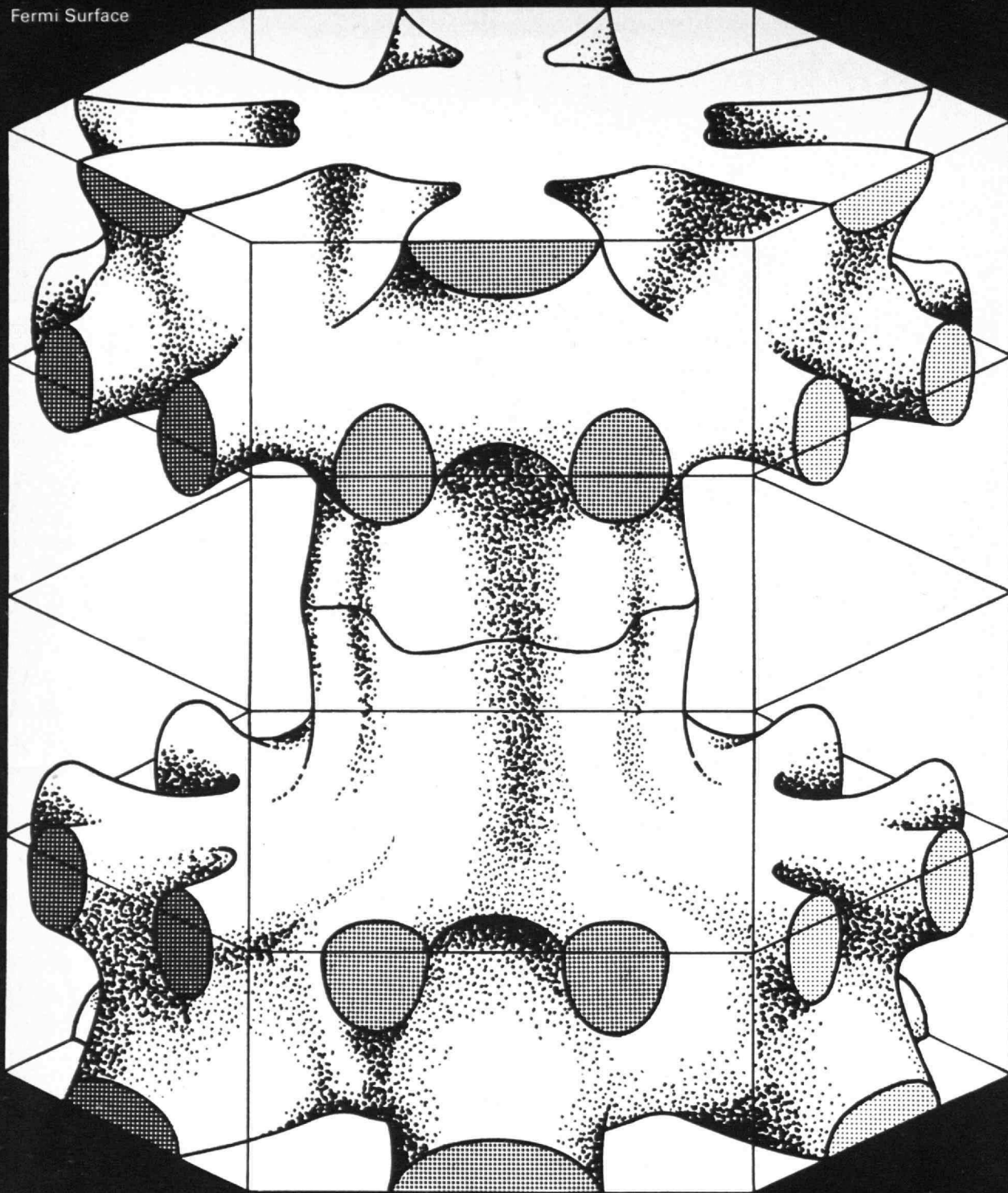
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# Technology Review

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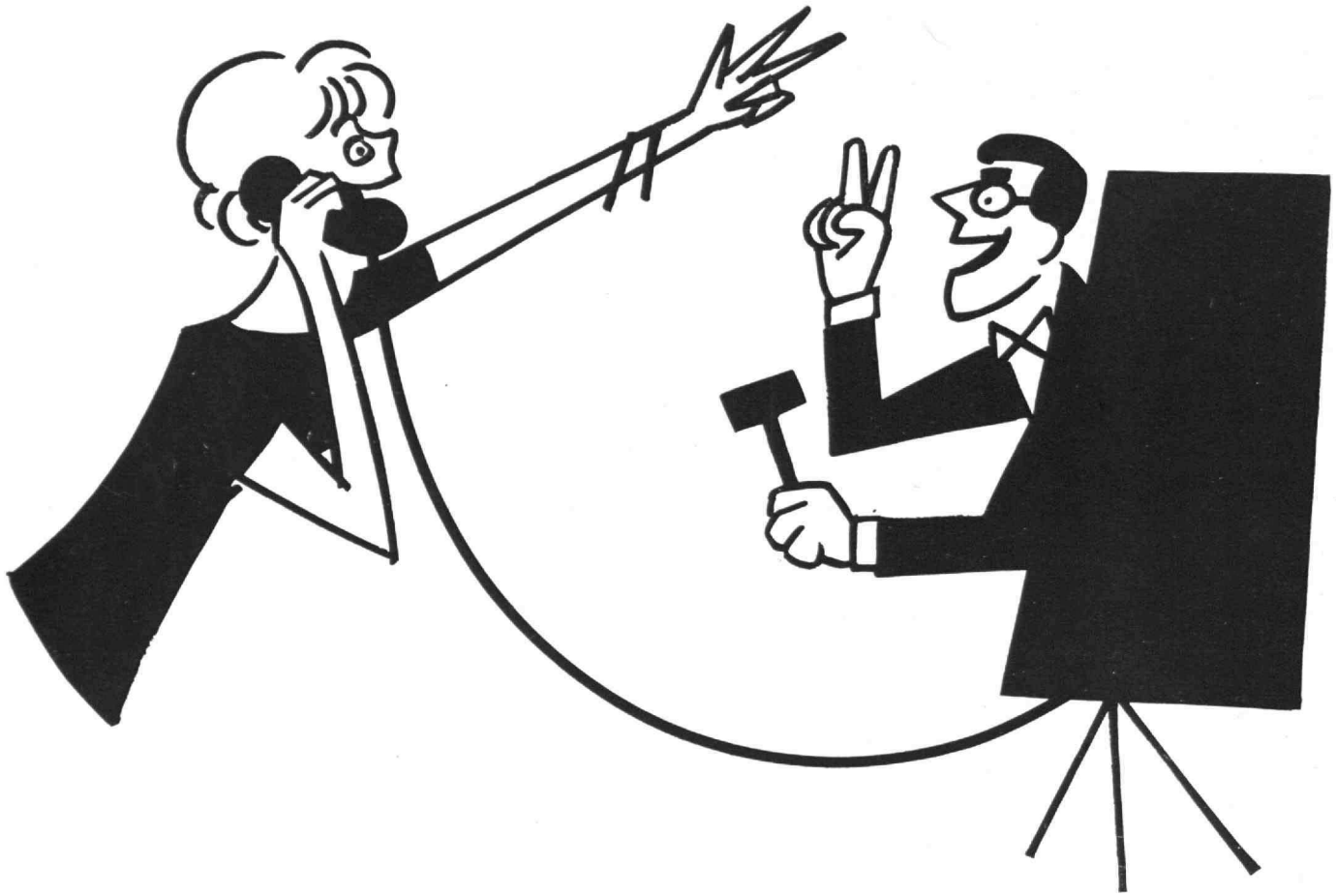
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THE COVER: Design by Muriel Cooper's studio from a Nigerian fabric.

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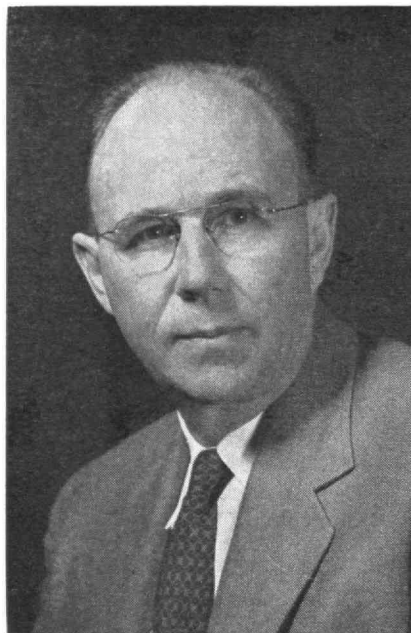




## M.I.T. HAS SEVEN NEW INSTITUTE PROFESSORS



CHARLES STARK DRAPER



HAROLD E. EDGERTON



CHIA-CHIAO LIN

Seven members of the M.I.T. Faculty have been appointed Institute Professors, a separate and extraordinary rank conferred in recognition of scholarly distinction. Candidates are nominated by their faculty colleagues and are recommended for the appointment by special review committees of the Faculty.

The seven new Institute Professors are:

*Charles Stark Draper*, '26, Professor and Head of the Department of Aeronautics and Astronautics, founder and Director of the M.I.T. Instrumentation Laboratory, and a pioneer in developing inertial guidance, control, and navigation systems for missiles, airplanes, ships, submarines, satellites, and spaceships. He is often called the "father of inertial guidance" in the United States.

*Harold E. Edgerton*, '27, Professor of Electrical Measurements, whose research on stroboscopic and ultra-high-speed photography laid the foundation for development of the electronic speed flash as a powerful tool of science and industry. His stroboscopic photographs of high speed action (golfers swinging clubs

and bullets breaking balloons) are familiar to millions.

*Chia-Chiao Lin*, Professor of Mathematics, an expert in the application of mathematics to fluid mechanics, hydrodynamics, aerodynamics, and geophysics whose book, *The Theory of Hydrodynamic Stability*, is a classic reference in the field. He is on leave this year, dividing his time between the Institute for Advanced Study at Princeton, N.J., and Harvard University.

*Bruno Rossi*, Professor of Physics, an internationally recognized authority on cosmic rays, galactic sources of x-rays, and the interplanetary medium. Studies by Dr. Rossi and his associates of the interaction of cosmic ray particles with atomic nuclei led to the determination of several of their physical properties and the group is pursuing a broad range of space research with satellites and deep space probes.

*Paul A. Samuelson*, Professor of Economics and one of the leading economists in the Western world. He has been a principal and influential advisor to the Federal government on the shaping of the national economy and his book, *Economics: An Introductory Analy-*



BRUNO ROSSI



PAUL A. SAMUELSON



CHARLES H. TOWNES

*sis*, published in 1948, is the most widely used economics text of all time.

*Charles H. Townes*, M.I.T. Provost and Professor of Physics, who shared the 1964 Nobel Prize in physics for fundamental work in quantum electronics which led to oscillators and amplifiers based on the maser-laser principle. His pioneering work on microwave spectroscopy and on masers and lasers has resulted in advances in fundamental science and in radio, optics, chemistry and astronomy.

*Jerrold R. Zacharias*, Professor of Physics, who is renowned as an atomic physicist and as an innovative leader in educational reform. His research on radio frequency spectra of atoms yielded important information on the shapes of nuclei and resulted in development of the first atomic frequency standard (atomic clock). He led the development of the Physical Science Study Committee (PSSC) physics curriculum now used in high schools throughout the United States and he has been a leader in curriculum changes at M.I.T.

*(Individuals Noteworthy is continued on page 9)*



JERROLD R. ZACHARIAS





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*(Continued from page 7)*

## Sloan School Dean

Professor William F. Pounds is the new Dean of the Alfred P. Sloan School of Management. Dr. Pounds, a specialist in operations management and quantitative managerial analysis, succeeds Dean Howard W. Johnson, who is to become M.I.T.'s 12th president when President Julius A. Stratton, '23, retires this year.

Dr. Pounds received his B.S. degree in chemical engineering from the Carnegie Institute of Technology in 1950 and after graduation joined the Eastman Kodak Co. as an industrial engineer. He served as a U.S. Navy pilot from 1951 to 1955, when he returned to Eastman Kodak. In 1958, he went back to Carnegie to earn his M.S. in mathematical economics.

Dr. Pounds came to M.I.T. in 1961 as Assistant Professor of Industrial Management in the Sloan School and was promoted to Associate Professor in 1964, the same year in which he received a Ph.D. degree in industrial management from Carnegie.

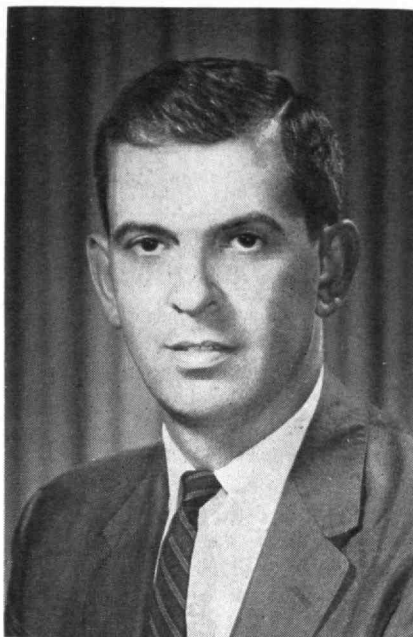
During the past two years, Dr. Pounds has participated actively in the Sloan School's International programs. In the summer of 1964 he was a member of the faculty of the School's Advanced Management Program in India, and in 1965 he organized and conducted an operations management program in Colombia, South America.

In his teaching and research, Dr. Pounds has concentrated on the quantitative methods of modern managerial analysis, on the problems of operations management, and on the theory of decision making. Also, he has played a leading role in the development of an operations management curriculum.

## Honors to Alumni

Recipients of recent awards and similar distinctions have included:

*Hjalmar D. Bruhn*, '37, the Silver Award, by the American Society of Agricultural Engineers . . . *Richard E. DuBois*, '52, the Vermont Engineer of the Year Award.



DEAN WILLIAM POUNDS

## Ceramic Society President

The American Ceramic Society has announced the appointment of George J. Bair, '36, as its President. Dr. Bair is the director of technical staff services at the Corning Glass Works and has been active in the Society since 1926.

A member of the first class to be granted degrees in ceramics at Pennsylvania State University in 1927, Dr. Bair earned his M.S. in ceramic engineering from Penn State in 1930 and his Sc.D. in ceramics from M.I.T. in 1936. He has been with Corning since 1942, and is the holder of eleven patents.

Dr. Bair was finance chairman for the Sixth International Congress on Glass in 1962 and a member of the executive committee of the International Commission on Glass.

## Business Statesman

Louis W. Cabot, Member of the M.I.T. Corporation and President of the Cabot Corporation of Boston, was given the first Business Statesman Award by the Harvard Business School Association of Boston in March.

Mr. Cabot, cited for his contributions to the city in the fields of business, education, and civil affairs, is director of New England Telephone and Telegraph Company, Arthur D. Little, Inc., and several other New England companies.

## Heads Urban Center

Daniel Patrick Moynihan, an expert on urban social and political problems and author of the widely-discussed government report on "The Negro Family," will become Director of the Joint Center for Urban Studies of M.I.T. and Harvard on July 1.

The announcement was made by Professor James Q. Wilson, present director of the Center, and Dean Theodore R.Sizer of the Graduate School of Education at Harvard, where Mr. Moynihan will also become Professor of Urban Politics. He will be a member of the Kennedy Institute of Politics and of the Faculty of Public Administration at Harvard.

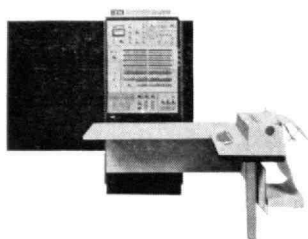
As Head of the Joint Center, Mr. Moynihan will direct a program that combines research in urban affairs with consulting efforts on urban problems. Created in 1959, the Center has been financed principally by the Ford Foundation, from which it recently received a \$1.4 million grant.

Mr. Moynihan wrote his report on the Negro family while he was Assistant Secretary of Labor for Policy Planning and Research from 1963 to 1965. Previously he served for two years as a special assistant to the Secretary of Labor. For his Government service, he received the Meritorious Service Award of the Department of Labor in 1964, and, as "an architect of the nation's program to eradicate poverty," the 1965 Arthur S. Flemming Award for Outstanding Young Men in Federal Service.

His book, "Beyond the Melting Pot," written with Nathan Glazer in 1963 about work done during 1960-1961 as a member of the Joint Center for Urban Studies, won the Anisfield-Wolf Award in Race Relations.

Now a Fellow at the Center for Advanced Studies at Wesleyan University, Mr. Moynihan continues to serve as vice-chairman of the President's Commission on Pennsylvania Avenue.

Mr. Moynihan holds the B.N.S. and B.A. degrees from Tufts College. He did advanced work in the Fletcher School of International Law and Diplomacy at Tufts and in the London School of Economics and Political Science, receiving the Ph.D. from the Fletcher School in 1961.



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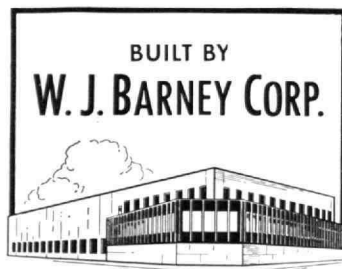
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**I**NDIVIDUALS NOTEWORTHY

(Continued from page 9)

**Inventor's Chairman**

C. Stark Draper, '26, head of the Department of Aeronautics and Astronautics at M.I.T., has been named Director of the National Inventors Council, which has been newly reconstituted by U.S. Secretary of Commerce John T. Connor.

Twenty-one scientists and engineers have been named to serve on the Council, which now has wider authority. Previously it could only evaluate new inventions. Under its new charter, it will be concerned with the processes of inventions, the work of inventors, and the methods of assisting them through state, regional, and Federal programs.

**Faculty Notes**

Herbert O. House, M.I.T. Professor of Chemistry, has been elected chairman for 1966 of the Division of Organic Chemistry of the American Chemical Society. . . . Professor Charles N. Satterfield, '43, of the Department of Chemical Engineering, has been appointed to the editorial advisory board of the American Chemical Society's *Industrial and Engineering Chemistry*.

**On Space Committee**

T. William Lambe, '44, M.I.T. Professor of Civil Engineering, has been appointed by the National Aeronautics and Space Administration to the Lunar Surface Subcommittee of the Science and Technology Advisory Committee for Manned Space Flight.

(Continued on page 12)

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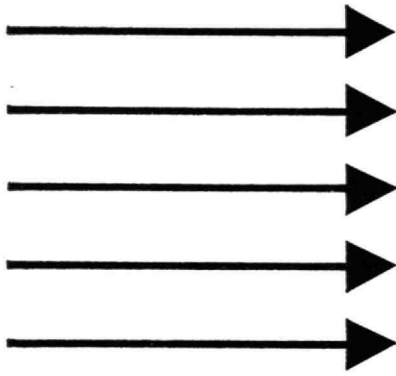
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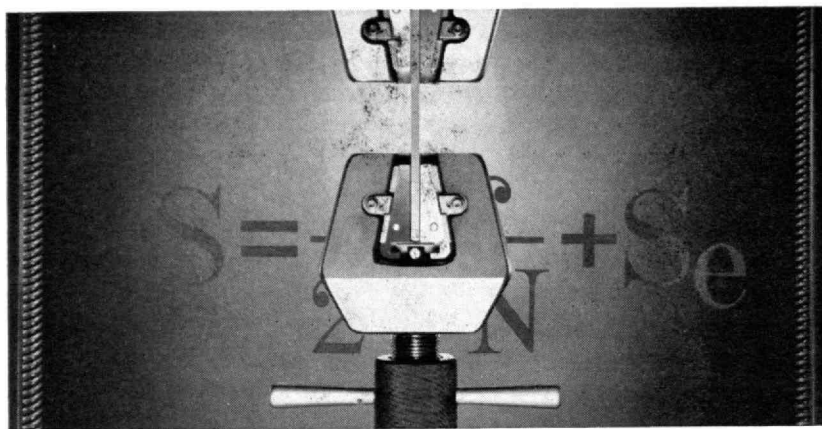


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## I INDIVIDUALS NOTEWORTHY

(Continued from page 10)

### Laurens Troost: 1895-1966

Professor Emeritus Laurens Troost, former Head of the M.I.T. Department of Naval Architecture and Marine Engineering, died in The Hague on March 18. One of the world's authorities on ship design and propulsion, he had retired from the Institute and returned to his native Holland in 1960.

Professor Troost was born in Rotterdam in 1895 and studied at the Delft Institute of Technology, where he received a degree in naval architecture in 1919. Thereafter he became a shipyard manager for the Royal Dutch Navy and Head of the Design Office of the Bureau of Ships. He was superintendent in charge of the design and construction of the Netherlands Ship Model Basin at Wageningen, and he became its first director in 1932.

Starting with a staff of eight and a testing capacity of ten model ships a year, the facility grew to a capacity of approximately 120 self-propelled models a year. Under his leadership, the Wageningen Basin undertook studies for shipbuilders throughout the world and became noted particularly for the development of new instrumentation and testing methods. In his first years at Wageningen, Professor Troost also organized the first International Conference of Towing Tank Superintendents, which was held in The Hague, and out of that conference came a permanent organization in this field.

In 1946 Professor Troost was on the faculty of the Delft Institute of Technology, and devoted part of his time to reconstruction of the Wageningen basin, which had been seriously damaged during the war. He first visited the United States in 1946 and returned to this country in 1951 under a Fulbright award as a visiting professor at the University of California (Berkeley), where he played an important role during the formative period of the new school of naval architecture, and also at M.I.T., where he helped introduce new subjects into the naval architecture curriculum. He became Head of the Department of Naval Architecture and

Marine Engineering at the Institute in 1952. Later, in 1957, he spent several months at the University of Sao Paulo in Brazil, helping to establish a new course in naval construction.

Professor Troost was made an Officer of the Order of the Oranje-Nassau by the Queen of the Netherlands in 1937 and in 1949 he received the gold De Ruyter Medal for outstanding service to shipping and shipbuilding. In 1965 he was made a Knight of the Netherlands Lion in recognition of his distinguished service from 1960 to 1965 as Chairman of the National Council for Industrial Research. He was founder and first chairman of the Dutch Shipbuilding Research Association.

Professor Troost is survived by his wife, the former Martha C. Versluys, and two sons, Marius and Daan Troost, both of whom reside now in the United States. Funeral services were held in The Netherlands.

### Mrs. Eleanor Jack Dies

Mrs. Eleanor McNidder Jack, widow of the late Professor James R. Jack and a friend to many former students and their wives, died on March 6 in her native Scotland.

Mrs. Jack came to this country in 1919 when her husband, a distinguished Scottish naval architect, joined M.I.T. as Head of the Department of Naval Architecture and Marine Engineering. He retired in 1936 and died in 1952.

Professor and Mrs. Jack lived for many years in Watertown, where students, especially young naval officers, were frequent guests. Mrs. Jack was a special friend to their wives, helped them organize the Technology Dames in 1923, and served on their Advisory Board until her death.

Mrs. Jack was decorated by Queen Elizabeth with The Most Excellent Order of the British Empire for her service to British charitable organizations in the United States and for her longstanding hospitality to British seamen and officers on leave in Boston.

On Alumni Day, 1963, Mrs. Jack was made an honorary member of the M.I.T. Alumni Association in recognition of her long friendship with M.I.T. students.

(Continued on page 14)

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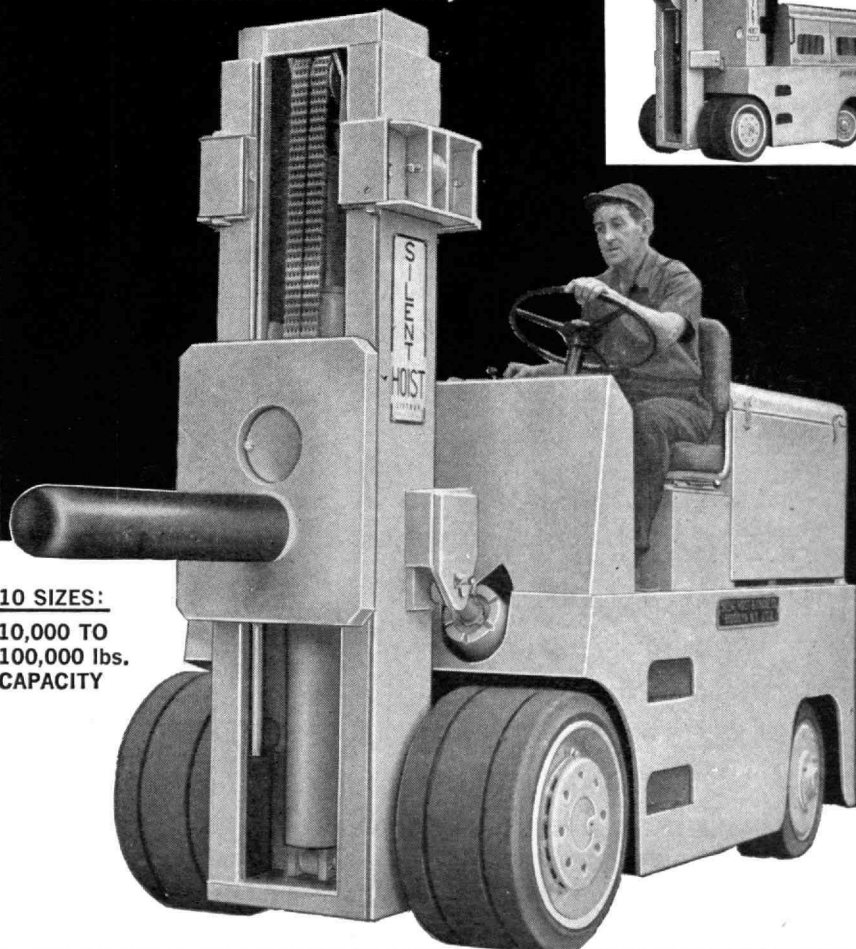
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(Concluded from page 13)

## New Posts

Named in the news of promotions, elections, and appointments recently were:

*Fred M. Rowell*, '21, as Executive Vice-president, New Bedford Gas and Edison Light Company . . .

*John H. Skinkle*, '24, as Head, Department of Textile Chemistry, Lowell Technological Institute . . .

*Heinn F. Tomfohrde, Jr.*, '29, as Group Vice-president, Tidewater Oil Company;

*Donald A. Holden*, '31, as Chairman of the Board, Newport News Shipbuilding and Dry Dock Company . . . *Frank S. Walters*, '35, as a

Director, Home Federal Savings and Loan Association . . . *Ariel A. Thomas*, '36, as a Partner, Metcalf & Eddy . . . *Philip D. Becker*, '37, Vice-president, Anchor Fasteners;

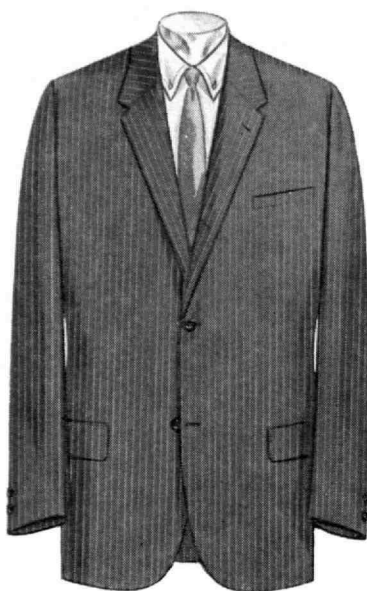
*Bertrand E. Bennison*, '37, as Head, Department of Biological Sciences, Drexel Institute of Technology . . . *James A. Newman*, '37, as Head, Eastern Region, Booz, Allen & Hamilton, Inc. . . . *Arnold F. Kaulakis*, '38, as Assistant to the Refining Coordinator, Standard Oil Company of New Jersey;

*David Brown*, '40, as Chairman of the Board, Scientific Design Company, Inc. . . . *William P. Lamb*, '40, as Vice-president—Business Development, Parsons-Jurden Corporation . . . *Donald D. Scarff*, '41, as a Director, The National City Bank of Cleveland;

*Albert F. Clear, Jr.*, '42, as Vice-president, The Stanley Works . . . *Warren H. Howard*, '44, as Vice-president, Morgan Construction Company . . . *Kenneth N. Davis, Jr.*, '46, as Vice-president, International Business Machines Corp.;

*Vincent S. Haneman, Jr.*, '47, as Director, Office of Engineering Research, Oklahoma State University . . . *Robert L. Mitchell*, '47, as Vice-president—Technical and Manufacturing, Celanese Chemical Company . . . *Herbert S. Kindler*, '48, as Executive Director, Instrument Society of America;

*Donald B. Evans*, '55, as a Senior Metallurgical Engineer, Columbus Laboratories, Batelle Memorial Institute.



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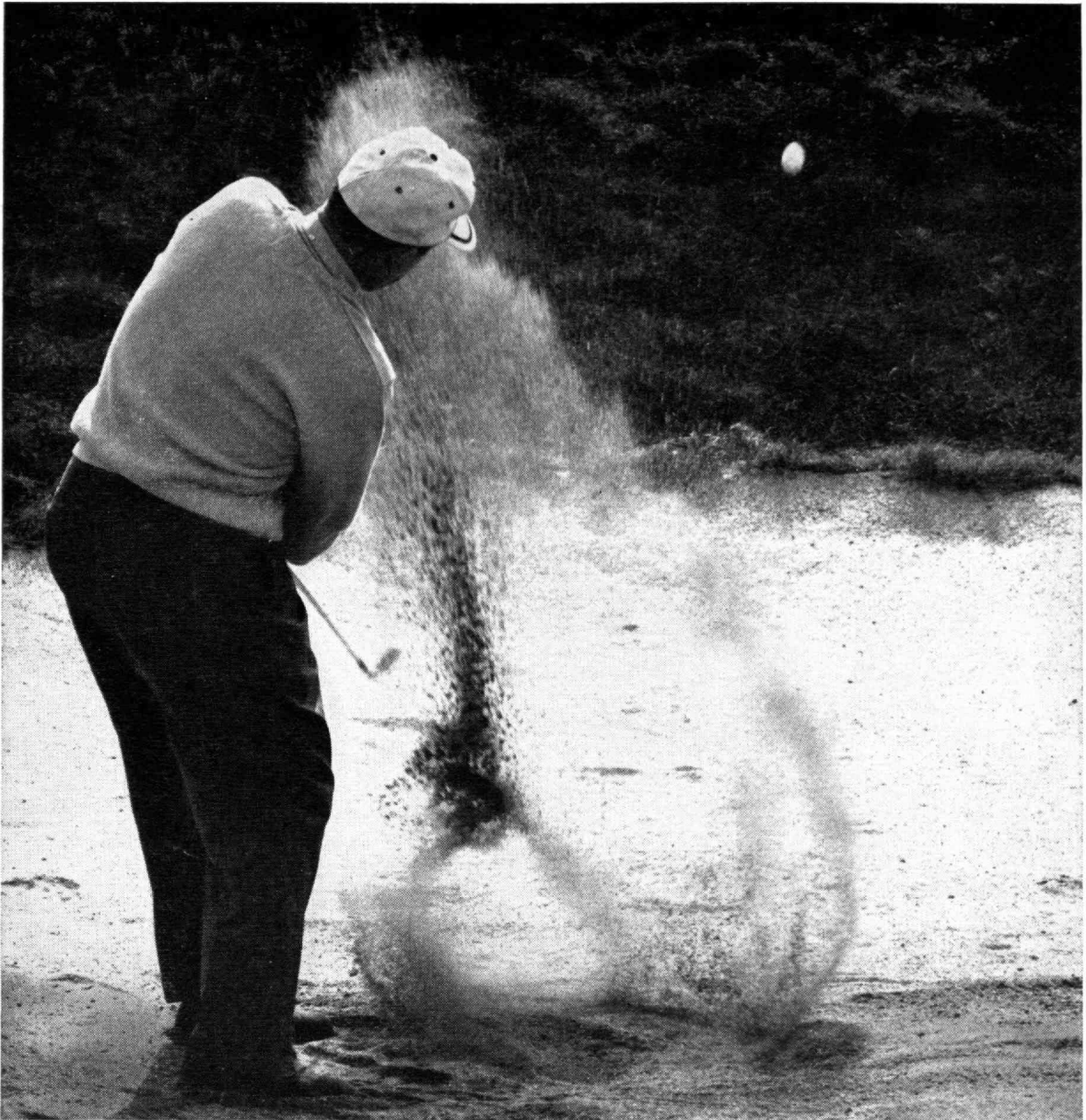
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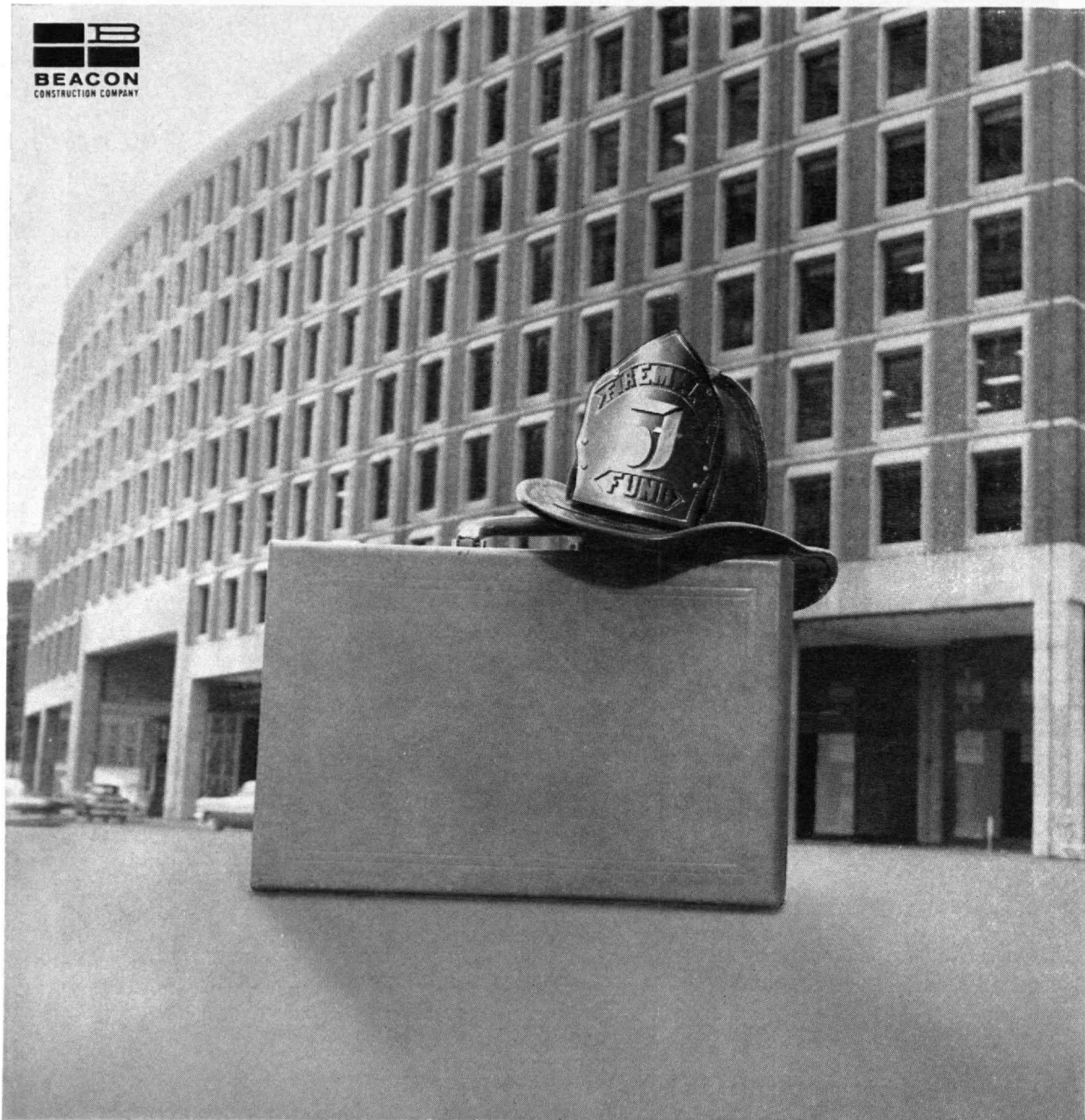
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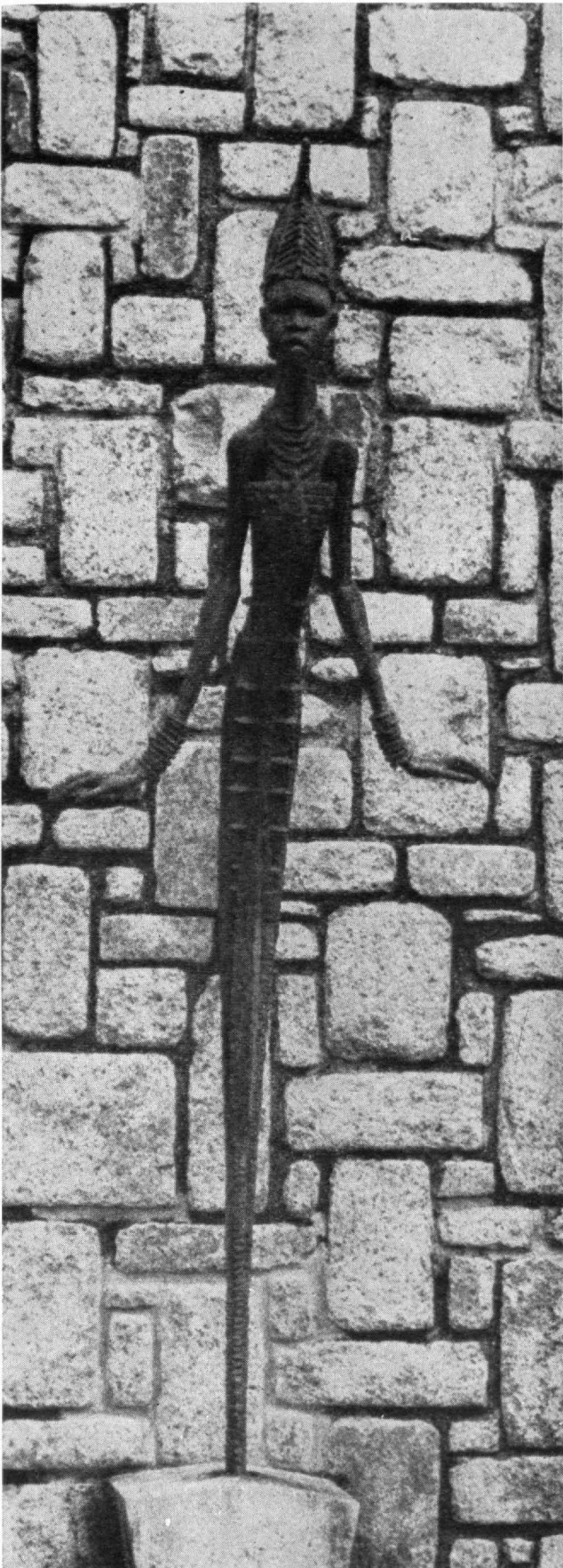
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# AFRICA AND THE WEST

"Nigeria and all African countries will increasingly turn away from the West to idealize the African way and the 'African personality,'" writes Frederick A. O. Schwarz, Jr. But, he adds, it is not a paradox to say that this tendency is really in the long-term interests of the West. Considering another aspect, Michael Roemer reminds Western businessmen that African social and economic systems are characterized by a constructive heritage of tribal traditions.

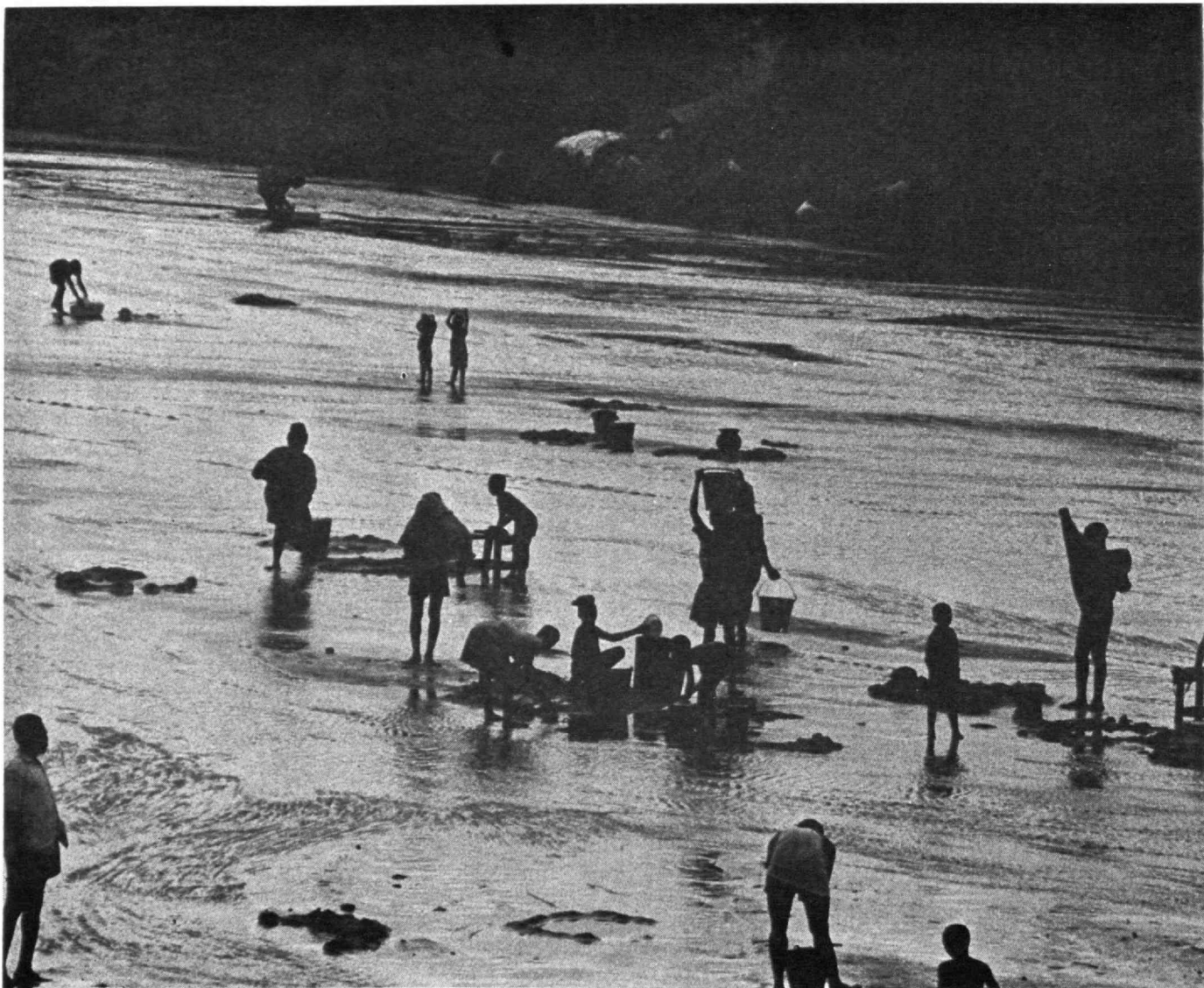
Both Mr. Schwarz and Mr. Roemer draw their insights from extensive on-the-job experience in African government agencies where they served—as unsheltered employees with operational responsibilities—under arrangements made by the M.I.T. Fellows in Africa Program. The program was established by Carroll L. Wilson, Professor of Management at M.I.T., to give African nations working-level assistance on specific kinds of problems, to foster better understanding between Africa and the United States, and to create a pool of talent in America for meeting this country's needs in its relation to Africa.

Extensive reports and analyses by the Fellows in Africa are contained in two recent books from the M.I.T. Press. Mr. Roemer, who holds degrees from Stanford and who was also a Sloan Fellow at M.I.T., worked in the Development Division of the Treasury in Kenya and his article is the chapter, "African Socialism and the Private Sector," from the book, *Financing African Development*. A lawyer, Mr. Schwarz has degrees from Harvard and was Assistant Commissioner for Law Revision for the Northern Region of Nigeria. His article is the last chapter, entitled "The Mind of Africa and the Western World," from his book, *NIGERIA: The Tribes, the Nation, or the Race*. The photographs accompanying their articles are by C. Davis Fogg, a Fellow in Africa who served in the Ministry of Economic Planning in Eastern Nigeria.

And, on pages 32 and 33 is a photographic report, "A Postoffice for Olodo," on summer work of American college students under the Crossroads Africa Program.

## Africa and the West

C. Davis Fogg



# AFRICAN SOCIALISM

By Michael Roemer



One of the difficulties in understanding African socialism arises from the existence of two schools of thought on the very meaning of the term and considerable variations of emphasis within each school. One group of leaders, the so-called scientific socialists, conceive of it as nothing more than the application in Africa of the teachings of Marx, Engels, and Lenin. The opposed school regards African socialism as a conception different in kind from the socialism known in Europe, a conception emerging from different conditions and employing different means to achieve objectives which are in many cases similar—though not identical to—traditional Marxist goals.

The latter interpretation of African socialism probably owes its genesis to Leopold Senghor, who in any event was the first to use the term. It has been adopted and frequently articulated by Julius Nyerere and Tom Mboya and can probably be taken as the prevailing view among the leaders of East Africa who have been vocal on the subject. It is certainly not the unanimous view; there are outspoken and influential exponents of Marxian socialism in Kenya, Uganda, and Tanzania. Nevertheless, the present weight of written opinion and the trend of public policy are on the side of African socialism as a philosophy in its own right.

Although there are differences of emphasis among proponents of non-Marxian African socialism, the elements of a common philosophy can be pieced together. Its basic premise is that the organization of traditional African society and the human relationships prevailing

Left: Scene at dusk, as the people of Nike, in Eastern Nigeria, go to the river to bathe and wash clothing and utensils.



within that society are generally desirable and should be preserved in modified form within the context of a modern economy. African society was generally communal in its organization, with the individual subordinated to an extended family. Extended families were, in turn, bound together in communities that were usually guided by elders but ruled by consensus. Land belonged to the tribe, and its produce was widely distributed; the needy were customarily provided for through the family and community system. Production was frequently organized on a voluntary, cooperative basis.

This communal approach to the organization and distribution of production did not rule out private enterprise, of a sort. Though it belonged to the tribe, land was actually held by individuals or by families, and they did have some control over the distribution of its produce, though they were expected to consider communal requirements in determining appropriate allocation. The only right to hold land, however, was the right established by use. Since land could not be held by title, there could be no transactions involving it. The socially acceptable producer was not acquisitive, but rather gave freely of his goods to those in need.

Particularly as painted in these simple and alluring images, the historical accuracy of this vision is open to some debate. For example, it clearly fails to describe the social arrangements of a host of starkly hierarchic African kingdoms that patched sub-Saharan Africa from Uganda to the Western Sudan. Actually, even for those areas and tribes to which it is generally applicable, it is unquestionably a facile oversimplification. So, one supposes, are most powerful conceptions.

Accurate or not, it is this view of traditional society which guides the Senghor school of African socialists. They seek a modern economy arising within the context of a communal society.

The cooperative movement is seen as one important mechanism for achieving this, as it allows producers to maintain and, in fact, to use their community relationships to meet the demands of a monetary economy. Similarly, self-help schemes are encouraged. Both cooperative and self-help programs permit Africans, who at the dawn of independence have already emerged from the economic and legal relationships of traditional society, to experience a sense of compatibility between traditional values and their new economic and legal position.

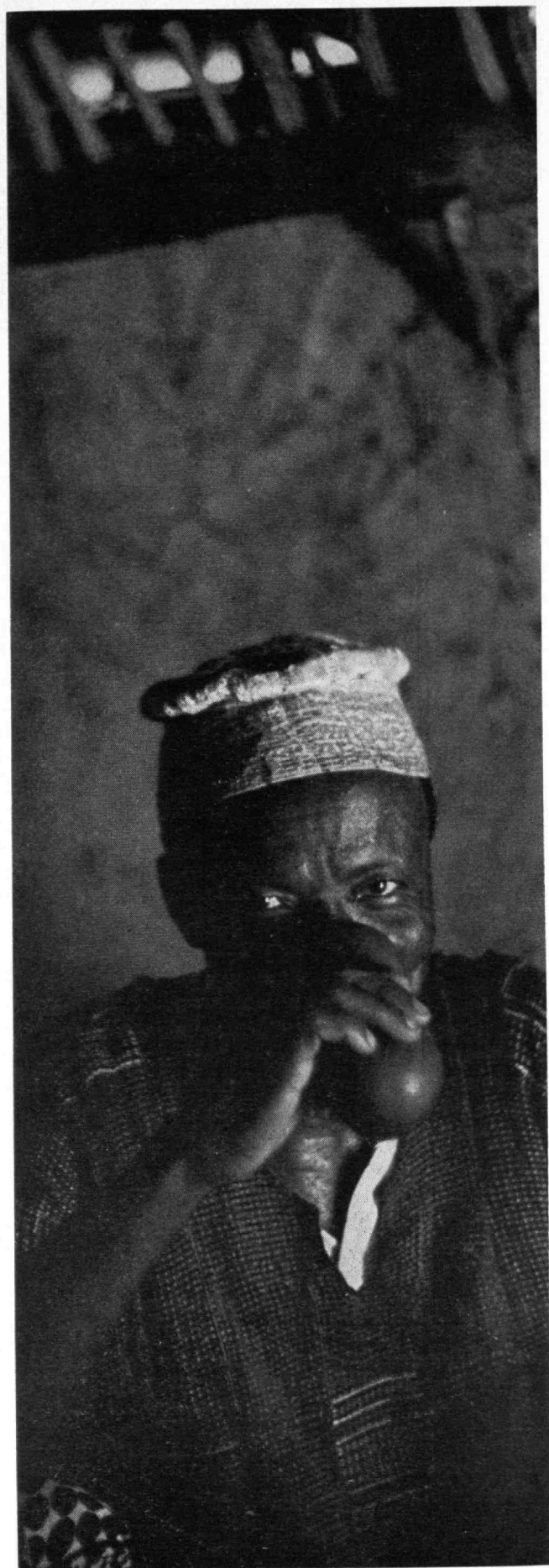
Today, many Africans are outright owners of their land, and some have become owners of small industry. These new capitalists have contributed significantly to both the growth and stability of the economy, and there are not many African leaders who would advocate a return of such land or industry to its traditional status (and fewer still who could accomplish it). Nevertheless, African farmers and businessmen are under pressure to satisfy two traditional criteria. First, they must use their assets personally and productively. African socialism glorifies physical work, and absentee ownership is regarded with displeasure, as is the ownership of unuti-

lized assets. Second, they must continue to act in harmony with the expectations of society that the needy will be provided for. The incomes of the modern farmers and businessmen are, in fact, distributed over a wide range of often distant relatives. While the concept of profits (or shall we call it the acquisitive urge?) has become socially acceptable, the retention of too great a portion of them, particularly when other individuals are in need, still is probably considered exploitative. At least, this is the attitude of tribes like the Kikuyu, who do have a deeply rooted communal tradition, though they have been among the quickest to appreciate and respond effectively to the personal economic opportunities presented by the monetary economy. In short, the new private sector is still part of and sensitive to a society that retains considerable respect for tradition.

African socialists view certain features of traditional African society as the basis for establishing modern welfare states. The extended family assumed responsibility for widows, orphans, and the aged. As pointed out before, many aspects of this indigenous welfare society have survived, so that Africans in the monetary economy often distribute their wages or profits among a large number of people. It should be possible to build on these favorable attitudes toward social welfare and give them formal expression through the institutions of a modern welfare state. The 1963 election manifesto of the Kenya African National Union, as a typical example, called for free medical care, provision for the aged (which has resulted in advanced plans for a national provident fund), and universal free primary education.

The typical African socialist's belief that traditional African society can form the basis of a modern nation leads him to reject Marxian socialism. Julius Nyerere is the most eloquent spokesman of this rejection. African society was based on the extended family, he argues in his pamphlet *Ujama*, and all members were, in some sense, brothers. There were no owners of land, the principal means of production; thus there could be no "exploiters" in the society. If in the beginning all men were brothers and none were exploiters, the doctrine of inevitable class conflict, which forms the basis of Marxian socialism, can have no relevance in Africa. Whereas Marx taught that a capitalist society, which would generate its own internal conflict, was the pre-condition for the transformation to socialism, the African socialists say that socialism already exists in Africa and only needs to be preserved, although in modern dress. The African socialist is fundamentally a conservative in his society and does not contemplate social revolution, although he often seems, to the Western ear at least, to speak in revolutionary language.

The African socialist feels that the intrusion of Western culture has tended to corrupt desirable African customs. For example, Nyerere has cited the renting of land and the abandonment of physical work as antisocial tendencies traceable to Western influence. The achievement of African socialism is often expressed in terms of the elimination of both social injustice and economic exploi-



C. Davis Fogg

A Nigerian farmer enjoys some wine drunk from a gourd.

tation, neither of which, it is said, existed before the colonizing of Africa. Thus, the process of adapting the best of indigenous customs to the modern society must proceed alongside the process of re-establishing those customs which have come under corrupting influences.

Because the exponents of African socialism do not adhere to the doctrine of the inevitable conflict between capital and labor, they have exhibited a much more pragmatic approach to social and economic problems than Marxian socialists have normally displayed. In concrete terms this has meant governmental acceptance, indeed encouragement, of a mixed economy rather than suppression of private enterprise. The following excerpt from a speech by Mwai Kibaki, the Parliamentary Secretary to the Treasury, in July 1963, is typical:

Mr. Speaker, Sir, this Government has already made clear the nature of the economy we are working for and it is that of a mixed economy. An economy in which the Government will make its contribution in spheres where the private investor may be hesitant to come in, in spheres where the project takes a long, long time to mature and to show profit. . . . Those areas in which services and goods are being provided by private industry—and being provided very efficiently—we are not going to interfere with. . . . We intend to have an economy where the Government and the private industries cooperate, and an economy where the ordinary individual person, if he has his money, is free to move in the direction he wants to move. . . . This is not to say, Mr. Speaker, that we are not aware that the bulk of the people in this country are poor and that they look to the Government for the provision of social services and incomes which they are not in a position to provide themselves. We are perfectly aware of that position. But we are equally aware, Mr. Speaker, Sir, that the way to help them is not to grab what little exists, or what little has been developed, and to distribute it to these people. . . . That would be the height of irresponsibility. Therefore, Mr. Speaker, our goal for the ordinary man who is poor in this country is for the Government to provide the services we need, on the understanding that he works with us . . . to help increase the national product. Then, Mr. Speaker, we shall have something to distribute to him, and that we promise you. Indeed, we can promise that we shall not allow our economic development to go in a way whereby the bulk of the wealth of this country could continue to be concentrated in the hands of a few people.

The mixed economy of the African socialist is closely controlled. Central economic planning is an essential feature, almost an article of faith, which is intended to ensure that all resources are employed most effectively in the attempt to achieve a fairly equalitarian income-distribution pattern, a welfare state, and rapid increase in per capita gross national product. One of the first tasks of the independent African government is to produce a development plan, showing how all the elements of both private and public enterprise participate in the strategy for growth.



In considering the role of the private sector in an African socialist country, it is important to distinguish between the expatriate and the indigenous private sectors. A significant African private sector has already emerged in East Africa and is growing rapidly. Kenya's development plan emphasizes several programs to encourage greater numbers of Africans to enter the private sector of the monetary economy, as productive landowners, traders, industrialists, and investors. The greater the success of these programs, the more committed Kenya's African socialist government will be to the maintenance of a healthy indigenous private sector. The terms on which it will remain acceptable to the African socialist have already been discussed. The important distinguishing feature of the African private sector, as opposed to its expatriate counterpart, is that at the moment it seems responsive to those traditions the African socialist wishes to adapt to a modern economy.

The more thorny question in considering African socialism and the private sector is the role of the expatriate private enterprises. The key to that role is the pragmatic approach of African leaders to the achievement of African socialism. Recognizing that vigorous economic growth is an indispensable condition for the realization of most of their social objectives, these leaders are encouraging expatriate private investment. The development plans for all three East African countries call for substantial investment of private foreign capital. Under Kenya's Plan, government capital is to be concentrated primarily in social services, infrastructure, and security, leaving private capital—a significant proportion of which must come from abroad, since domestic sources are clearly inadequate—virtually alone to develop manufacturing and with the major responsibility for agriculture, fishing, tourism, and housing.

**D**espite the importance of expatriate private investment, it will inevitably experience some difficulty in living harmoniously with African socialism. In the first place, the foreign investor, with the notable exception of the expatriate farmer, is often an absentee owner and, in any case, does not perform the physical work that is revered by African socialists. Moreover, the ex-

patriates who manage private enterprises form an elite that is painfully visible to African leaders, not only because of its obvious wealth but because its existence is contrary to their concepts of a classless society based on the extended family.

There are various avenues open to the foreign investor for the amelioration of latent or potential antagonism. One is to assist in the effort to achieve substantially greater African participation in the monetary economy. When the capital structure of a new venture is being considered, plans should be made to secure African participation. Ideally, shares would be sold to Africans, for that is the most direct way to give Africans the sense of having a stake in new enterprise. Shareholding, however, is probably the last step rather than one of the early steps to be taken in Africanizing the economy. The savings for such investment are not being generated at present in significant quantities, and considerable basic education in the workings of a capital market needs to be undertaken. In some cases, schemes for delayed local participation might be employed. These can be particularly effective in food-processing industries, since the cooperatives of growers who supply the factory can be given a chance to purchase shares out of their earnings. Such schemes involving participation by groups or individuals organically related to the enterprise will also help satisfy the preference of African socialists for owners who contribute their own labor to make their assets more profitable.

In lieu of immediate direct participation, government participation through a state enterprise, such as a development company, should be sought. A government committed to African socialism is likely to feel more comfortable with expatriate enterprises in which some public agency has an interest. Such an enterprise is seen as working within the development machinery established by government and, therefore, as less likely to act contrary to government policies. There is a concomitant benefit to the investor. Development companies are likely to be staffed with the best business talent available to the government; thus government participation in this form is more likely to be sound and constructive. Furthermore, the foreign investor may obtain valuable knowledge of local conditions that he might otherwise lack. He gains this in addition to governmental favor.





Left: Construction of a farmhouse in Egede, Nigeria.

C. Davis Fogg

Regardless of whether the Government participates directly in the enterprise, it will probably expect close cooperation on some matters, particularly those related to social welfare. One illustration of the type of request that may be made was the Kenya Government's attempt to alleviate the unemployment problem by asking employers to increase their labor forces by 10 per cent. The Government offered to hire an additional 15 per cent itself, while unions were asked to support a wage freeze for one year. Although many firms had to hire redundant labor, most large private employers responded to the Government's appeal. Similarly, if a government's development plans call for expansion or other action in a certain industry, there is an expectation that existing firms in that industry will respond, even if the risk may be greater than normal. While governments in East Africa are unlikely to resort to immediate compulsion in support of such requests, investors with long-range interests will undoubtedly discover persuasive arguments for compliance.

One reason why the motives for cooperation with government are powerful is the intimate nature of government-company relations in the small African economies, where every new enterprise of any size represents a significant addition to the economy's productive capacity. A company's favorable public image will promote cooperation and avoid some of the potentially damaging controls that governments feel philosophically free to impose. Government cooperation may result in valuable concessions to the enterprise in the form of protection, licensing, provision of infrastructure, and other benefits.

One of the important aspects of Kenya's plans to introduce more Africans into the monetary economy is a program to provide loans and extension services to aid African enterprises. The expatriate industrialist can assist in such efforts. He may, for example, donate management time for advisory services to African businessmen, or he may invite fledgling entrepreneurs to his factory on a regular basis for training. In some cases he may find it feasible to assist in the founding of locally owned supply sources as an alternative to producing the supplies himself or importing them.

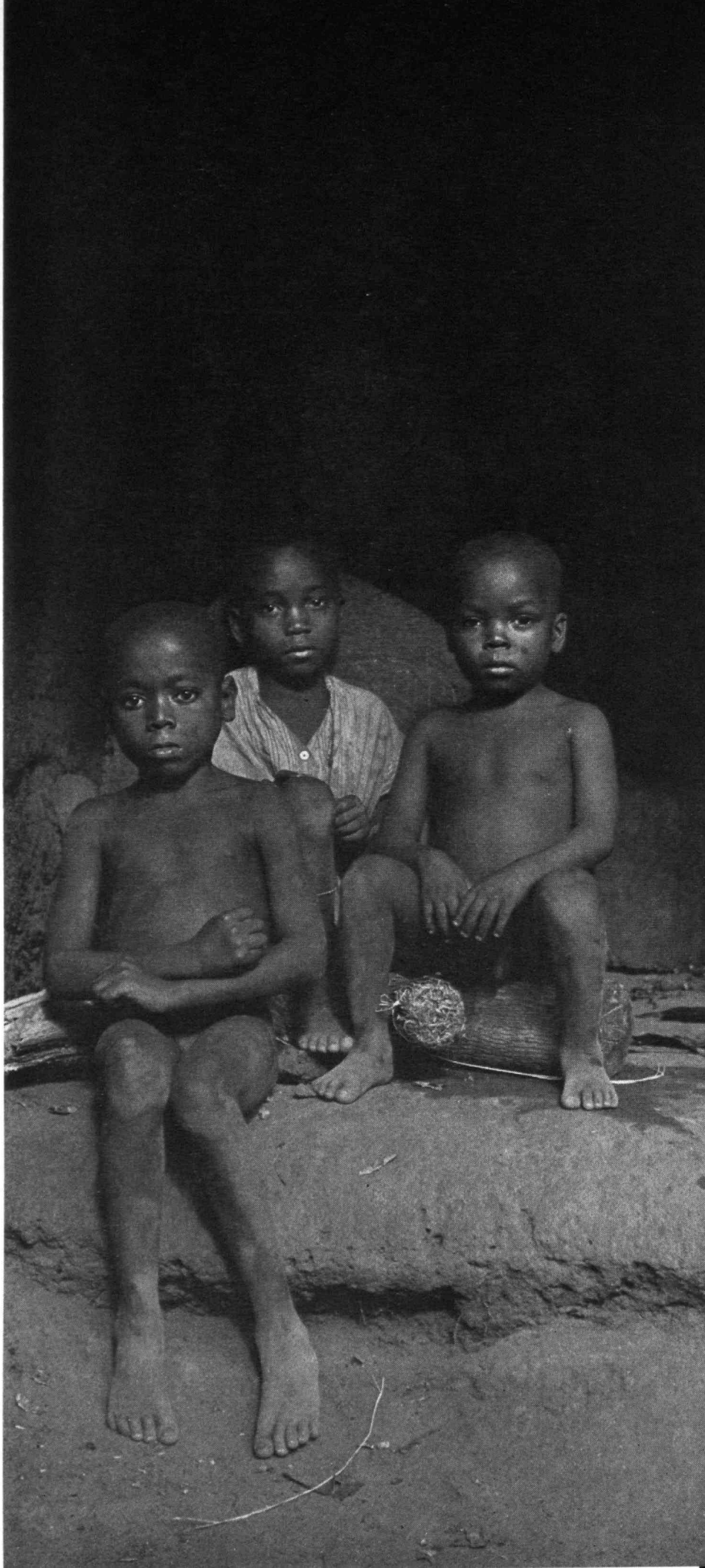
There remains the question of profits. Africans earning profits are expected to distribute a share to promote community welfare. Analogously, expatriate firms that reinvest locally rather than repatriate the bulk of their profits will find a far more congenial atmosphere for their operations. Most African countries trying to attract investment do have laws guaranteeing the repatriation of profits and capital. Nevertheless, one feature of the working partnership that African socialists are promoting between government and private industry is the expectation that both partners will continue to reinvest in order to develop the country. Rapid repatriation will tend to be equated with exploitation.

In undertaking measures that are intended to reduce the potential conflict with African socialism, it is essential not to adopt a paternalistic approach. The reaction of an American (or European) industrialist or corporation to the social welfare emphasized in Africa may very well be reversion to the paternalism that marked labor-management relations in the United States in the early decades of this country. At that time management began to consider more seriously its responsibility to labor, but did not consider that employees had any right (or ability) to participate in decisions regarding conditions of employment. In Africa the same attitude formed the basis for colonial government. Identification, however inadvertent, with this aspect of preindependence rule would represent the nadir of good public relations. To avoid paternalism, if African participation is invited in a new venture, the shareholders must be given a voice in company policy commensurate with their investment. African managers must really manage and not simply shadow an expatriate decision-maker. Participation in determining appropriate working conditions or welfare plans by worker and—where one exists—by union should be encouraged.

One of the great unresolved questions is whether a modern industrial organization can adapt to the mores and institutions of traditional African society without a serious loss of efficiency. The Japanese have been preeminently successful in an analogous effort in their own country. Recruitment methods, the authority structure, and the reward system all closely reflect the traditions of

Children of the Ibo tribe in Egede,  
an agricultural village in Eastern  
Nigeria.

C. Davis Fogg



# THE MIND OF AFRICA

By Frederick A. O. Schwarz, Jr.

**B**oth unity, national or supranational, and power are attained by intangibles as well as tangibles. A nation is held together as much by its songs and shared myths, by its memories of common peril and common struggle, as by calculations of mutual advantage. Power cannot be gained through resources alone; desire must be joined to them.

For Africa, with Nigeria being no exception, it seems likely that her myth (myth in the sense of the emotional ideal or faith for which she will struggle) will be emphasis upon the uniqueness and virtue of the Negro race and African society—yesterday's and today's. That ideal is summed up by the vague statement that the African personality must be fulfilled. At the same time, the struggle will be against the Western world; disengagement from the West will be a paramount aim.

There is nothing particularly controversial about those observations. The tendencies are what would be expected from societies which had been dominated—but not destroyed—by Western colonialism. To assert that it is to the West's own interest that Africa emphasize its differences from the West may be more controversial and so may be the assertion that the coming concentration upon the virtue of Africa and of black people is one necessary step toward reducing the importance of race in human affairs.

The fact that African nations have achieved their political independence does not mean that they have yet become free. Because their economies are underdeveloped and still excessively dependent upon the co-

lonial powers, they are not free economically. Because the years of colonial patronizing left their mark and because of their continued need for technical aid, they are not completely free in spirit. Having attained political independence, they will fight a long battle for economic and spiritual independence. This battle will lack the drama and heroic quality of a classic political revolution and to the outside observer will often seem silly, or nasty, or immature.

The fight will often center upon such things as firing faithful foreign teachers. Some Africans will claim to be fighting the battle, but in fact will become stuffy caricatures anxious only to appear to be dignified. But the aim of the battle remains true independence, pride, and self-confidence.

Nigeria, as is true with most of Africa, attained her independence without a revolutionary struggle. Individual Nigerians and groups such as the Zikists fought and suffered, but the people as a whole did not. The people were not asked to die a little and in one mighty shrug throw off the colonial master. The British gave in before a nationalist revolution had to be mounted, the skirmishes were fought with the pen and not with the sword, and the final victories were won in conference rooms of capital cities and not on a battlefield.

No one would wish upon a people the bloodshed and misery that are the lot of those who have to die for their freedom. Yet it is clear that such a common struggle can bring a divided people together as can nothing else. And in the future the memory of the common



peril, magnified by myth and kept alive in song and story, holds them together. A successful common struggle is significant also in that it is symptomatic of greater power with which the new country can begin its national existence.

Nigeria's problems are the greater because she was blessed by a peaceful transition to independence. Mr. R. A. Fani-Kayode, in a speech to the House of Representatives calling for independence in 1960, described the peaceful transition as a challenge. He said:

We face the tranquil and peaceful transmutation of our State from slavery to freedom, constructive nationalism without the forcible destruction of the old imperialistic order by the collective efforts of a subject people. Without heat, without rancour, without the age-worn rallying cry to nationhood of death to the oppressor . . . without blending of our peoples through the fire, the furnace and the forge of the common struggle for freedom against the common enemy. Without the inspiration and the brotherhood born of common sufferings, common risks and dangers faced together in the fight for a common cause and the common satisfactory exhilaration and thanksgiving of achievement in the attainment of freedom together into a solid and indivisible whole, into a nation, we will find all these old formulae useless in our attempt to build a nation. For we are faced with freedom without tears, a new product of the twentieth century—the British challenge to history, to the civilized world and to us.

The use that Nnamdi Azikiwe has made of the peaceful transition to independence is illustrative of the increasing tendency to argue that the African is different from and better than the Western peoples. He contended that:

The continent of Europe set a pattern for bloodshed in the attainment of liberty . . . but we in forgotten and neglected Africa know better. We are so steeped in religiosity and humanitarianism, and we are so cultured and civilized that we have often trodden the path to freedom bloodlessly. . . .

For several reasons, Nigeria has been relatively moderate about mounting an emotional battle against the West. Its own internal divisions provide one explanation for its moderation. In the North, foreigners are preferred to Southerners in positions of responsibility for which Northerners are not formally qualified. The entire Northern Nigerian High Court is composed of foreigners, though the South has so many qualified lawyers that some are sent to other African countries as a form of foreign aid. (A Southern Nigerian recently became Chief Justice of Uganda, for example.) Beyond the relevance of the Northerners' lag, the existence of tension between ethnic groups means that a European in a sensitive post has the one advantage of appearing to be neutral as between the competing indigenous ethnic groups.

The balanced, restrained views of Prime Minister Tafawa Balewa have been influential in this respect just as they have been influential in shaping Nigeria's foreign policy. His emphasis upon the human personality as opposed to the African personality has already been

mentioned. He frequently has sought to tone down what he regarded to be the excesses of nationalistic emotion. For example, a few months after independence, he defended his retention of an Englishman as his chief assistant by telling a heckling audience of Nigerian students in London "you don't kick people out for emotional reasons." He has returned again and again to the theme of national responsibility rather than national rights. Shortly before independence he remarked:

I remember it being said in a previous debate that it is better to govern ourselves badly than to be governed well. Perhaps it is better for those who do the governing, but we must think of those who are going to be governed by us.

It is also tempting to explain Nigeria's often moderate position on the need to assert the African personality as reflecting the psychology of the Northerners who play a dominant role in her government. Because Northerners were left more alone by the British than the Southerners and because their civilization (grounded in Islam) better withstood the shock of the powerful Western civilization, colonialism was less of a traumatic experience for them than for the Southerners and the rulers of many other African nations. Having retained more of their confidence, they have less of an emotional need to take drastic steps to restore their confidence.

For many Nigerians, however, the easy victory of the powerful colonialists, the disruptive effect of the years of tutorial colonial rule, patronizing contempt for their indigenous values, and their continuing need for outside aid have produced a crisis of confidence which has been described as a "colonial mentality." That crisis, which could also be called an inferiority complex, is manifested by an attitude that standards can be maintained only by copying the British, that things African are necessarily inferior, or at least that strangers would think so and that their approval is vitally important.\*

That attitude is responsible for many small things—the prestige of imported goods, wigs on the heads of the lawyers, formal garden parties on national occasions, no Nigerian food in the Government resthouses. It is the attitude which made a Government minister, himself an ardent nationalist, begin an article describing postindependence accomplishments by referring to the praise ("the remarkably frank admission") of a "well known expatriate who has been in this country for over four decades." The loss of confidence caused by colonialism explains why the newspapers care so desperately about the opinions of the British press concerning Nigeria. As one Nigerian journalist explains,

\*India's Jawaharlal Nehru commented upon the same phenomena in India, saying:

We developed the mentality of a good country house servant. Sometimes we were treated to a rare honor—we were given a cup of tea in the drawing room. The height of our ambition was to become respectable and to be promoted individually to the upper regions. Greater than any victory of arms or diplomacy was this psychological triumph of the British in India.

We sensationalize [British opinions] because we the Editors accept in the first place that the British journalist must of necessity know more than we do about our own country and about our own affairs. And being still unconsciously colonial, we publicize these comments to strengthen our arguments and prove to readers that the press of the "bigmaster" sitting in London agrees with our point of view.

Many of these attitudes are insignificant in themselves, though indicative of a lack of confidence that itself is serious. But the results are sometimes more significant. For one thing it has made it hard for many to derive the pride that they should from their own cultural heritage.

It was loss of respect for their roots that Ulli Beier referred to when he wrote that most educated Nigerians were "indifferent or hostile" to "their most important cultural heritage," their vital, vibrant, and expressive traditional wood carving. As he explained it:

The present generation of Nigerians is in the process of a social revolution. They are trying to build for themselves a new life and a new society, and anything which reminds them of the old way of life which they are trying to leave behind is therefore suspect. . . . In the average primary school the child is taught to look at traditional Nigerian art as crude and "primitive" . . . Art teaching suffers from the same failing from which the whole of Nigerian education suffers: it is foreign-orientated.

The most serious consequence of the colonial mentality is that it distorts the career choices of Nigerians. Far too few are willing to become technicians or farmers as compared to the many who seek a liberal arts education and a civil service career. Economic realities do not explain this fact. Rather, the source is psychological. The colonial administrators who came to Nigeria were themselves trained in that way and filled those positions. "And so," said the Ashby Commission Report on Higher Education in Nigeria, "the literary tradition and the university degree have become indelible symbols of prestige in Nigeria; by contrast technology, agriculture, and other practical subjects . . . have not won esteem." A Nigerian put the distorting desire to emulate Europeans more pithily, saying that it was the colonial mentality which made his countrymen "take things easily, enjoy some booty . . . [in order to satisfy] the urge to live and behave big so that our people can notice they are now more important than the Europeans."

(Of course, one of Nigeria's vital needs is that her people realize that Nigerians are now more important than Europeans in the sense that they govern the country. Another disadvantage of not having had a dramatic transition to independence, particularly since so many of the familiar colonial administrators remained, is that it was not clearly brought home to the people that the country was theirs to make of it what they could.)

A further example of the tendency to overemphasize the British way of doing things and to find differences humiliating can be found in the reasons given for an amendment to the Federal Constitution in 1962. The amendment eliminated the provisions designed to iso-

late the Federal Director of Public Prosecutions from political control. In urging the Federal House of Representatives to begin the amendment process, the Attorney-General pointed out that the equivalent official in Great Britain and the United States is subject to political control and vigorously asserted that no other "civilized country" had a completely independent prosecutor. The implication was that by isolating the prosecutor from politics the Nigerian Constitution suggested that Nigerians were less to be trusted than Englishmen or Americans and that it was therefore derogatory. A good case can be made for precisely the opposite proposition, i.e., that the Constitution before amendment showed rather that Nigeria in this respect was more civilized than either the United States or Great Britain and that devices to ensure that prosecutions are not based on partisan politics are desirable reforms everywhere rather than insulting to the first country that makes the reform. But it is harder to maintain this position when one finds security in doing things in the same way as Great Britain and is acutely sensitive to anything that might be construed as either an admission or an accusation of inferiority.

A somewhat different consequence of the crisis of confidence caused by colonialism is an acute sensitivity to foreign criticism, which produces a tendency to respond in ways so extreme that without knowledge of the background the response would often appear ludicrous. After a British ex-magistrate in Northern Nigeria, who had no connection whatsoever with the British Government, had written an article calling the Northern criminal reforms a "retrograde step," the Northern Minister of Information concluded his heated reply by saying "we must reconsider the connection between our country and the United Kingdom [if this attitude continues]." Similarly, after the *Manchester Guardian* had speculated in an editorial that Nnamdi Azikiwe sought to return to partisan politics from his position as Governor-General, the Student Union at the University of Nigeria threatened to call on the Federal Government to sever diplomatic relations with Great Britain unless she disassociated herself from the *Guardian* editorial.<sup>†</sup> Azikiwe's own reaction reflects the deep frustrations underlying Nigeria's relations with the West and suggests one direction that those frustrations might push her. He denounced the "regular tendentious references" of the "Anglo-Saxon" press to African political leaders as examples of its "congenital racial snobbery," remarked that neither *Pravda* nor *Izvestia* have been so "insolent" or "boorish," and finished by saying that though the older generation has held on to the British connection because of its belief in liberal democracy "in spite of regular doses of insults and gibes from the Anglo-Saxon press . . . I cannot guarantee that our

<sup>†</sup>Nigerian sensitivity to what appear to be slights from Englishmen should not surprise Americans, who in the latter part of the nineteenth century, approximately a century after their own independence, would react hypersensitively to disparaging remarks about American society by Englishmen such as Charles Dickens.

children will stomach your continued irreverent attitude toward Africans and their political leaders."

The most celebrated case of Nigerian hypersensitivity to foreign criticism was the Margery Michelmores incident. Miss Michelmores, one of the first Peace Corps volunteers in Nigeria, wrote her impressions of Ibadan on a postcard which was seen and quickly publicized at the University of Ibadan. Her view was one-sided and exaggerated as she graphically sought to portray squalor—"We really were not prepared for this squalor and absolutely primitive living conditions both in the city and the bush. Everyone except us lives in the street, cooks in the street, sells in the street and even goes to the bathroom in the street." There was not a balancing word about the beautiful and respected university at which the volunteers were staying or of the hopes and successes of the people.

The first reactions in Nigeria after Miss Michelmores's post card was publicized were quick and angry. A campus rally organized by the Ibadan Student Union called upon Nigeria to oust the Peace Corps; even the conservative NPC newspaper hotly decried the insult to those who have fought beside the "pig-headed" and "dollar-flowing" Americans.

Some second thoughts in Nigeria give a foretaste of the more balanced reaction to criticism that will become general only after the confidence lost during the colonial years has been restored. As the Federal Government newspaper editorialized:

There is the danger of our paying all the attention to all the wrong things which Miss Michelmores said, rather, to the clumsy way in which she said them; of forgetting the truth which the little American girl told.

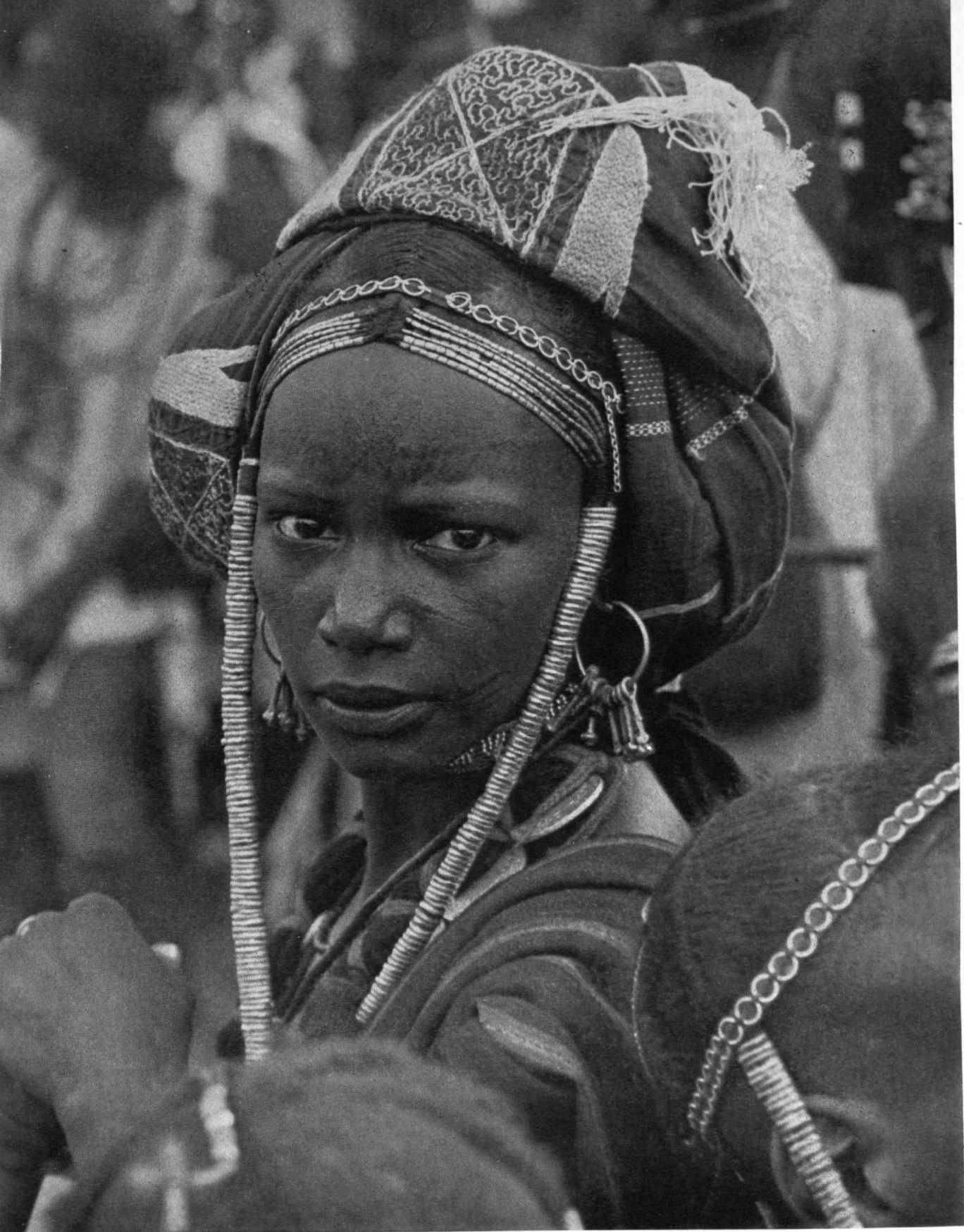
We feel we owe it as a moral duty to ourselves to face the facts of our country and to reply to the critics, not in demonstrations, but in doubling our relentless efforts to ensure that we quickly remove the things which distress both our eyes and our hearts.

An unnatural predilection for things British without thought to their suitability for Nigeria and a hypersensitive reaction to foreign criticism are both aspects of the crisis of confidence caused by colonialism, race prejudice, and the powerful sweep of Western civilization through Africa. They are the emotional or mental part of the whole complex of weaknesses that, despite political independence, constitute the relationship between Africa and the West. In its search for a force to overcome those weaknesses, and in frustration at their existence, Africa will turn more and more to exalt the African way, the "African personality," or "negritude."

A Westerner's assessment of exaltation of the African way or the African personality must depend in the final analysis upon his opinion of Western civilization. If all its values are universals, if man has reached his peak here and now in the West, then of course only fools worship at a different shrine. But even if one doubts that the West has reached the peak, should not the ethnocentrism of Africans be attacked as much as the ethnocentrism of Westerners?







C. Davis Fogg

In Northern Nigeria, a Fulani girl dressed for ritual.

The answer to the question, considered in the abstract, is yes. But to consider it in the abstract is to ignore the vital facts. Those are that the years of Western mastery and racial prejudice have deprived the African of much of the pride and self-confidence needed to pick and choose judiciously those elements from Africa and those elements from the West and other parts of the world that together are suited to his present situation. That is the aim of the exponents of finding an African way: they do not want to return to primitive Africa, and they do not want to become carbon copies of the Western world; they believe that their own society has values and institutions which could enrich the world community and which, at the least, are more suited to their own development than standards or institutions which evolved in quite different social settings.

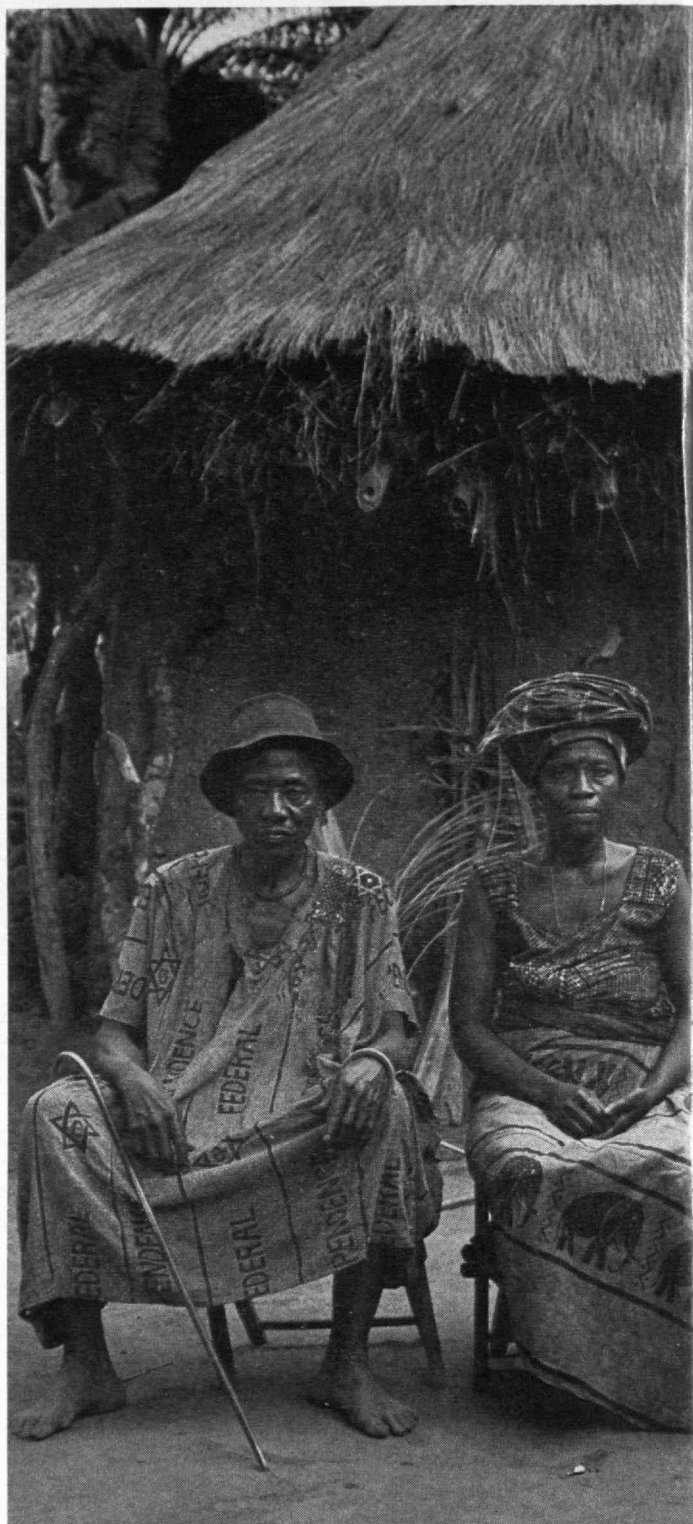
A synthesis must be struck, a balance. But before that can be done the scales must be evened by shoring up the previously scorned and ignored African side.

Many of those in the West who react to assertions of African uniqueness by crying out that all men are individuals can be disregarded because they earlier justified colonial rule by the statement that the colored man was the white man's inferior. Others cannot be so dismissed, and the danger of racist heresy in Africa is great. But is it not true that the African will never come to the table as an individual until he comes with pride and is met with respect? Both pride and respect will arrive sooner if the African comes not as a blurred copy of the Western white man but with his own individualistic style.

Black racism—or more precisely hatred and intolerance of the white man, particularly Western whites—is a very real danger in Africa. Past injustices, present prejudice inside and outside Africa, insults and slights real and imagined—those are the things, all intensified by frustration at Africa's weakness, that create the danger.

The danger of racism directed against the white man is not going to disappear because of efforts of the wealthy, largely white, Western nations to aid Africa. Though aid is absolutely necessary to end the weakness upon which black racism feeds, aid, even when given with only good intentions and good will, takes place in a context of superiority and inferiority, calls attention to weakness, and thus for the short term can magnify the frustrations that underlie racism. The recipient nation, moreover, will constantly feel pressure to assert its independence from the donor nations.

The danger of black racism will not disappear until the African no longer feels menaced by white racism and, apart from that, until he has become genuinely self-confident. That he will not become without emphasis upon the African way. That is not to say that the danger of racism can only be met by indulgence in racism, for seeking to develop an African way is not the equivalent of some doctrine of black superiority. Rather it is a continuing quest for independence, based upon acceptance of cultural diversity, a desire for de-



Farm couple in Egede in Eastern Nigeria.

C. Davis Fogg

velopment, and a belief that the powerful nations of the world have not yet found the key to the good life.

Accompanying exaltation of the African way will, of course, be attacks upon the Western way. Disengagement from the West will be the keynote. To the West this will often be distasteful in the extreme: sad acts of disloyal ingratitude the African's course will often appear to be. But apart from the short-term interests of some Western countries that profit from Africa's present weakness, this trend should be seen as in the interest of the West.

It is, in the first place, in the interest of the West to have strong rather than weak African countries. When weak they create a power vacuum which is a threat to the stability in which the West today has the greatest stake. Their present emotional and economic dependence upon the West is their greatest weakness. They cannot develop unless the energy of development is tied to institutions, ideals, and desires to which the people naturally respond. Second, those aspects of Western civilization which are of universal value must, to prosper in Africa, be rid of the incidental baggage with which they came. The right of the people periodically to choose their government must, for example, be winnowed from less universal values. Even such matters must be found to have roots in indigenous thought and action rather than being solely the gift of the munificent West.

The most common question asked of an American who returns from Africa is: Is it we or the Communists who are winning? The question proceeds on an assumption of Western superiority and on the *tabula rasa* theory of the African mind—that it is empty and waiting to choose either the West, the embodiment of virtue, or the Communists, the embodiment of evil.

If that is the right question to ask, then the answer is likely to be that the Communists will ultimately win. For the emotional drive to become independent of the West is so strong that if the only alternative to the West were the Communists that alternative would probably be taken. It would have, moreover, the advantage of enabling the African to attain many Western comforts (which he by no means has ceased to want) and of still appearing to oppose the West. If that is the right question, Africans will be driven into the arms of Communism, and Communists will ride the backs of African nationalism to victory. Furthermore, if the West assumes it to be the question then the danger of Communist domination can become a self-fulfilling prophecy. Because if it is the question, then the West will intervene in Africa and if it does so Africans will turn to the enemies of the West.\*

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\*This is not to suggest that the Communists are not a threat to Africa. They are. All African governments are fragile. Frustration is great and will become greater. But the strongest defense against Communism is African nationalism and the West has to be careful not to push Africans, particularly young Africans, into an alliance with Communism.

But it is not the right question. Africa has another alternative, which is to develop the African way and move toward a synthesis of that way, the Western way and perhaps a bit of the Communist way.

Thus, even from the point of view of the West's struggle against Communism, Africa's disengagement from the West to develop the African way is desirable. George Padmore, a West Indian Negro who became a leading advisor of Ghana's Kwame Nkrumah on African affairs, saw the future well several years ago when he wrote that Africa's choice was between the two parts of the title of his book—*Pan-Africanism or Communism*.

The West is far better equipped than the Communist world to understand and appreciate the new African philosophy and for that reason—but for its lingering racial prejudice—far more likely to retain the friendship of Africa after it has won its true freedom. The African way is a threat to any system which believes it has found the universal truth. Communism is such a system. The iron laws of Communist ideology will not readily bend to accommodate a pluralistic world, and if they do much of the threat is gone.

The West—led by countries like the United States, one of whose most deeply held ideals or myths has been that it has prospered from its own pluralism—can welcome a pluralistic world. Though much of its power has been built upon ethnocentrism, of which the white man's burden approach to colonialism is a classic example, its ability to adapt to change and to live with and learn from differences, is more relevant to its continuing strength today. That is one ability that enables a civilization to grow with the world, and the West, just as Africa, will grow by mixing its own values with what it can learn from other parts of the world.

*Interested readers may pursue this subject further in Pan-Africanism or Communism? The Coming Struggle for Africa, by George Padmore (Dobson, London, 1956), and in Art in Nigeria, 1960 by Ulli Beier (Cambridge University Press in collaboration with the Information Division, Ministry of Home Affairs, Ibadan, Nigeria, 1960).*



# A Postoffice for Olodo



Each summer, Operation Crossroads Africa sends some 300 American students to live and work in African villages. Among them last year was Michal Kerestes, '68, who helped build a post office in Olodo, a village near Ibadan, Nigeria. For six weeks she worked with 12 other American students and their Nigerian counterparts in this tiny community, which has no electricity and a limited water supply. (Workers were allotted two buckets of water a week for washing.) Building materials were supplied by the Nigerian government and the post office was completed, the only catch being visits from local politicians who used the project as a gambit in their election campaigns. Miss Kerestes' photographs show life and work in Olodo, where next year's project will be a community center.



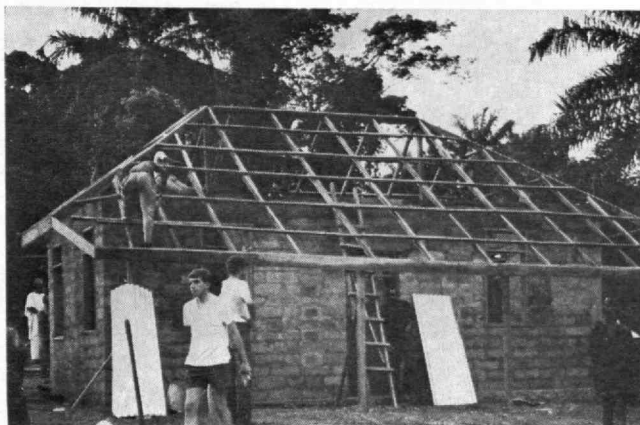
A politician climbs up to lend a hand.



Olodo children sing along with Arthur Olson, leader of the Crossroads group.

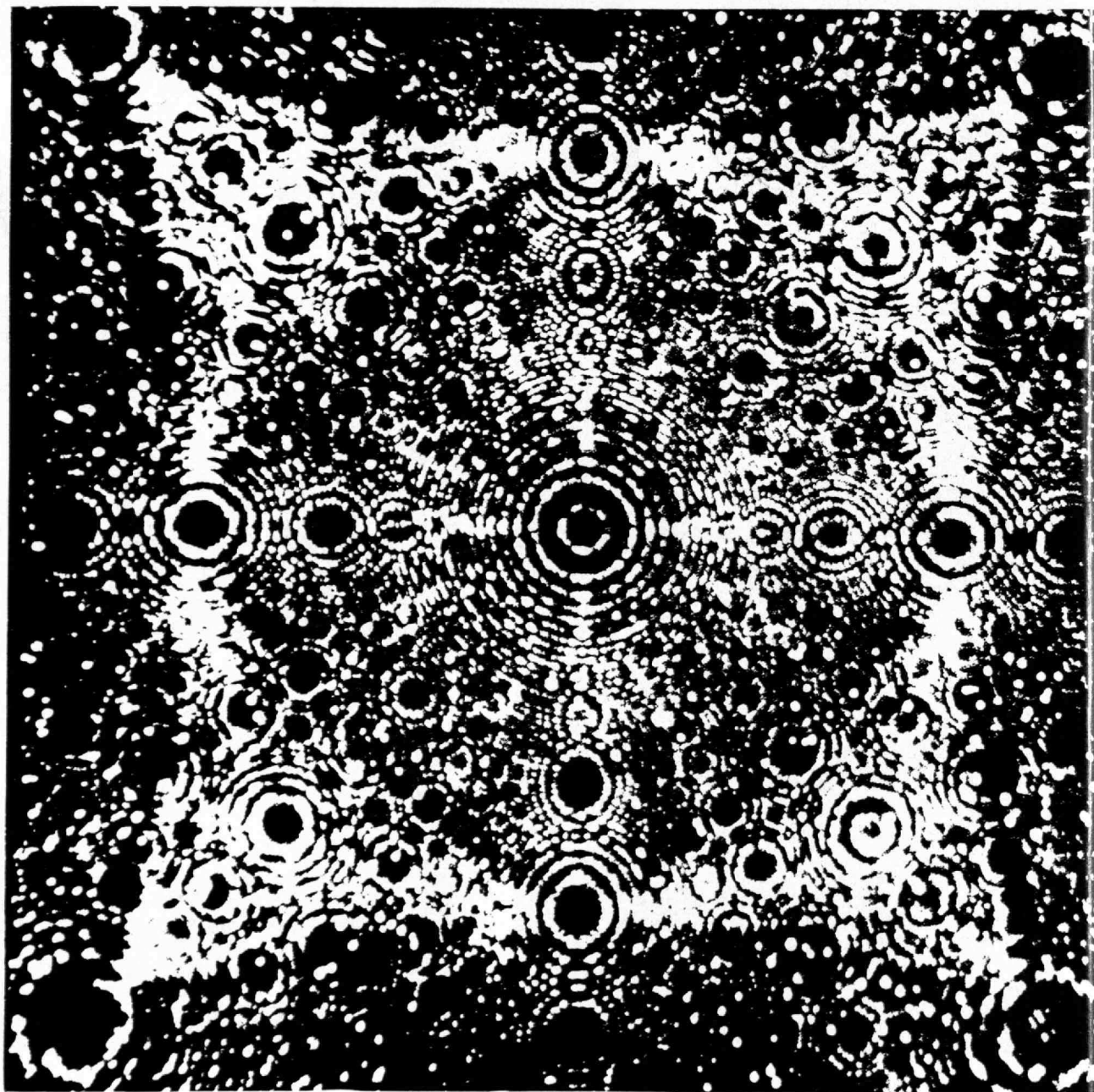


Anne Winters, from Macalester College, teaches a new game.



Above: Doing the laundry. Below: The roof being framed.

Field-ion microscope image of a pointed piece of a metal alloy shows crystal facets and individual atoms.





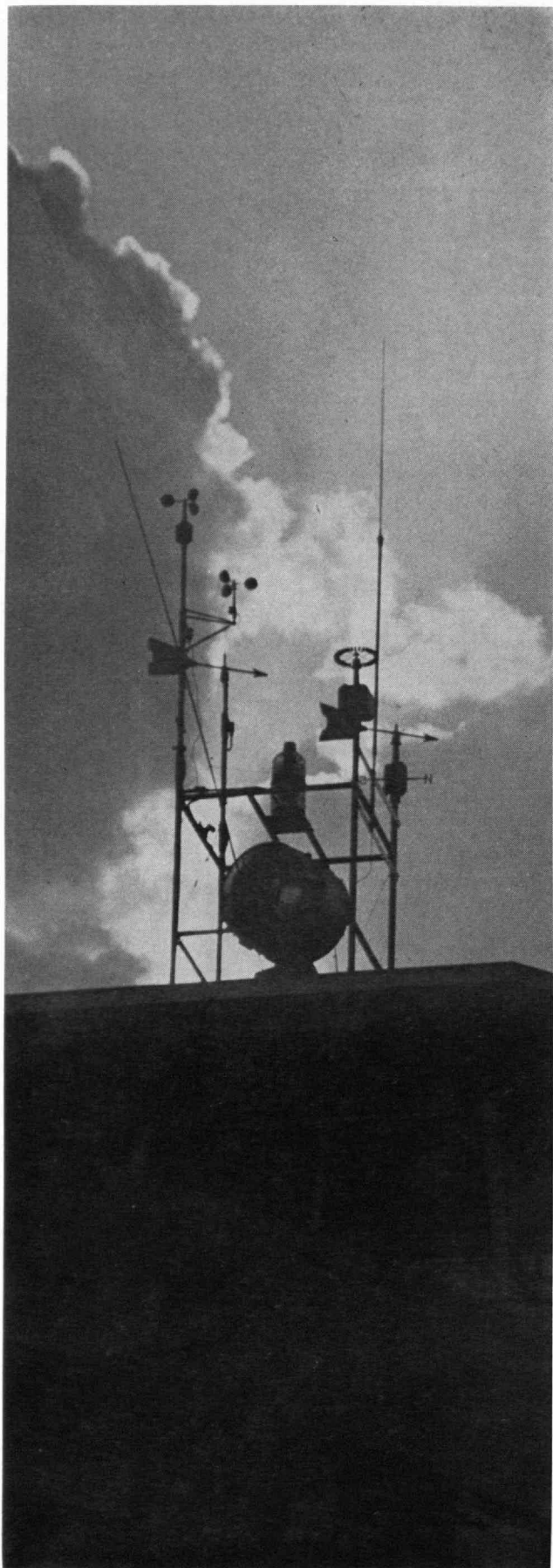
# THE CONVERGENCE OF SCIENCE AND RELIGION

The ever-increasing success of science has posed many challenges and conflicts for religion—conflicts which are resolved in individual lives in a variety of ways. Some accept both religion and science as dealing with quite different matters by different methods, and thus separate them so widely in their thinking that no direct confrontation is possible. Some repair rather completely to the camp of science or of religion and regard the other as ultimately of little importance, if not downright harmful. To me science and religion are both universal, and basically very similar. In fact, to make the argument clear, I should like to adopt the rather extreme point of view that their differences are largely superficial, and that the two become almost indistinguishable if we look at the real nature of each. It is perhaps science whose real nature is the less obvious, because of its blinding superficial successes. To explain this, and to give perspective to the non-scientists, we must consider a bit of the history and development of science.

The march of science during the Eighteenth and Nineteenth centuries produced enormous confidence in its success and generality. One field after another fell before the objective inquiry, experimental approach, and the logic of science. Scientific laws appeared to take on an absolute quality, and it was very easy to be convinced that science in time would explain everything. This was the time when Laplace could say that if he knew the position and velocity of every particle in the universe, and could calculate sufficiently well, he would then predict the entire future. Laplace was only expressing the evident experience of his time, that the success and precision of scientific laws had changed determinism from a speculative argument to one which seemed inescapable. This was the time when the devout Pasteur, asked how he as a scientist could be religious, simply replied that his laboratory was one realm, and that his home and religion were a completely different one. There are today many vestiges of this Nineteenth-Cen-

**By Charles H. Townes**

*Dr. Townes, M.I.T. Provost and Institute Professor, presented his ideas on science and religion first to a Bible class in 1964, the year in which he won the Nobel Prize for physics. Later, he developed his thoughts further in an article that appears this spring in THINK Magazine. It is reprinted here by permission of the author and of THINK Magazine, published by IBM. Copyright 1966 by Charles H. Townes.*



tury scientific absolutism in our thinking and attitudes. It has given Communism, based on Marx's Nineteenth-Century background, some of its sense of the inexorable course of history and of "scientific" planning of society.

Towards the end of the Nineteenth Century, many physical scientists viewed their work as almost complete and needing only some extension and more detailed refinement. But soon after, deep problems began to appear. The world seems relatively unaware of how deep these problems really were, and of the extent to which some of the most fundamental scientific ideas have been overturned by them. Perhaps this unawareness is because science has been vigorous in changing itself and continuing to press on, and has also diverted attention by ever more successes in solving the practical problems of life.

Many of the philosophical and conceptual bases of science have in fact been disturbed and revolutionized. The poignancy of these changes can be grasped only through sampling them. For example, the question whether light consists of small particles shot out by light sources, or wave disturbances originated by them, had been debated for some time by the great figures of science. The question was finally settled in the early Nineteenth Century by brilliant experimentation which could be thoroughly interpreted by theory. The experiments told scientists of the time that light was unequivocally a wave and not particles. But about 1900, other experiments turned up which showed just as unequivocally that light is a stream of particles rather than waves. Thus physicists were presented with a deeply disturbing paradox. Its solution took several decades, and was only accomplished in the mid-1920's by the development of a new set of ideas known as quantum mechanics.

The trouble was that scientists were thinking in terms of their common everyday experience and that experience encompassed the behavior of large objects, but not yet many atomic phenomena. Examination of light or atoms in detail brings us into a new realm of very small quantities with which we have had no previous experience, and where our intuitions could well be untrustworthy. And now in retrospect, it is not at all surprising that the study of matter on the atomic scale has taught us new things, and that some of these were inconsistent with ideas which previously had seemed so clear.

Physicists today believe that light is neither precisely a wave nor a particle, but both, and we were mistaken in even asking the question, "Is light a particle or is it a wave?" It can display both properties. So can all matter, including baseballs and locomotives. We don't ordinarily observe this duality in large objects because they do not show wave properties prominently. But in principle we believe they are there.

We have come to believe other strange phenomena as well. Suppose an electron is put in a long box where it may travel back and forth. Physical theory now tells us that, under certain conditions, the electron will be sometimes found towards one end of the box and some-

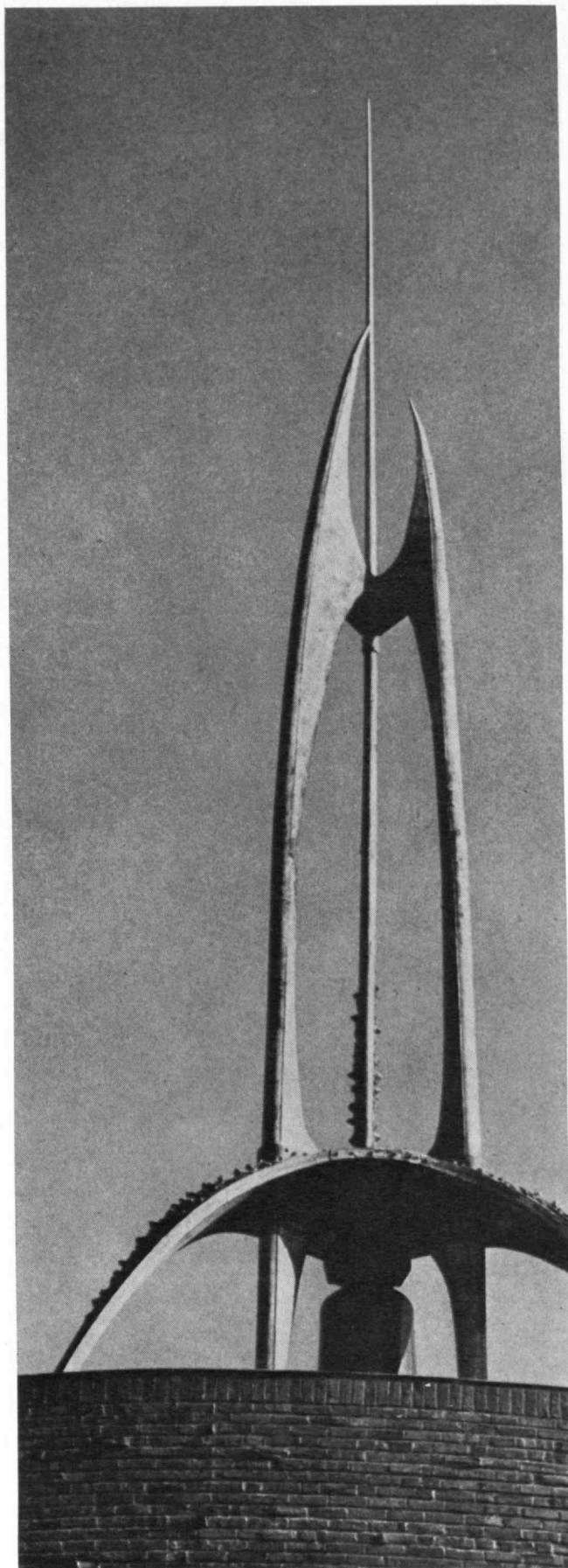
times towards the other, but never in the middle. This statement clashes absurdly with ideas of an electron moving back and forth, and yet most physicists today are quite convinced of its validity, and can demonstrate its essential truth in the laboratory.

Another strange aspect of the new quantum mechanics is called the uncertainty principle. This principle shows that if we try to say exactly where a particle (or object) is, we cannot say exactly how fast it is going and in what direction, all at the same time; or, if we determine its velocity, we can never say exactly what its position is. And so, according to this theory, Laplace was wrong from the beginning. If he were alive today, he would probably understand along with other contemporary physicists that it is fundamentally impossible to obtain the information necessary for his precise predictions, even if he were dealing with only one single particle, rather than the entire universe.

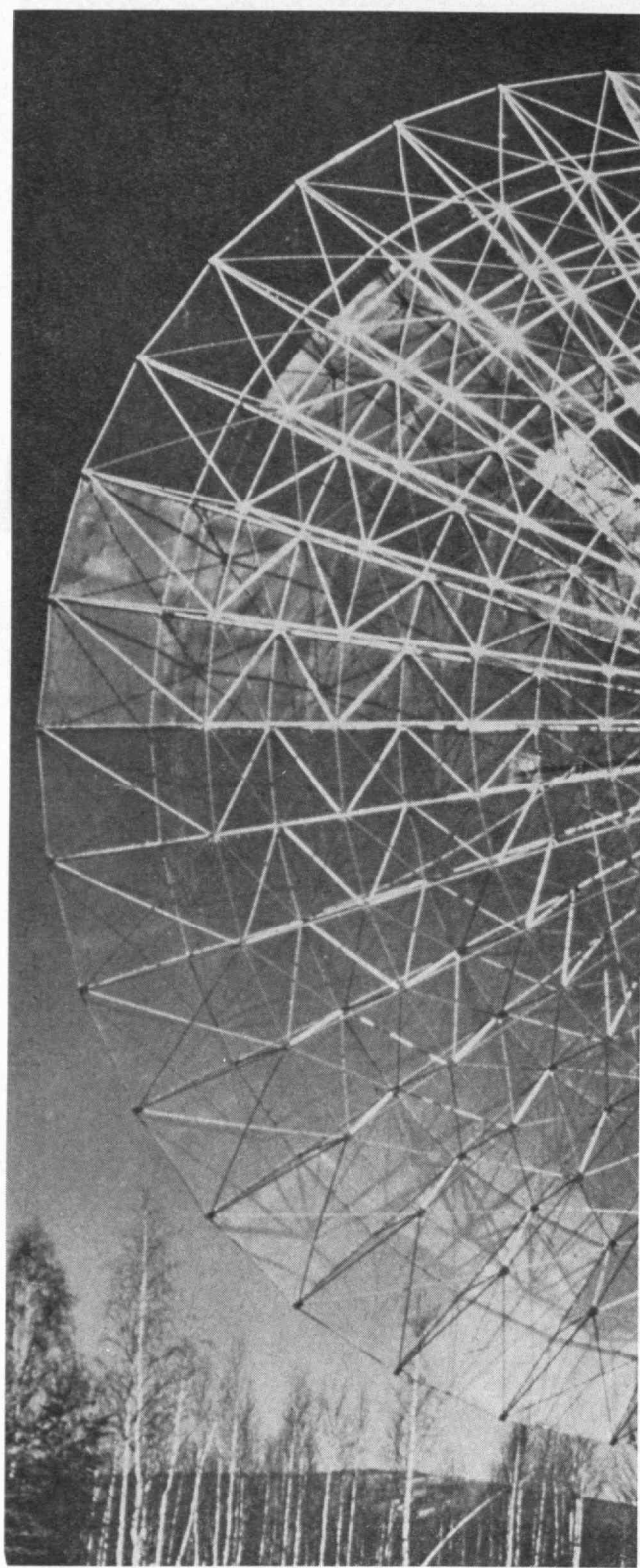
The modern laws of science seem, then, to have turned our thinking away from complete determinism and towards a world where chance plays a major role. It is chance on an atomic scale, but there are situations and times when the random change in position of one atom or one electron can materially affect the large-scale affairs of life and in fact our entire society. A striking example involves Queen Victoria who, through one such event on an atomic scale, became a mutant and passed on to certain male descendants in Europe's royal families the trait of hemophilia. Thus one unpredictable event on an atomic scale had its effect on both the Spanish royal family and, through an afflicted czarevitch, on the stability of the Russian throne.

This new view of a world which is not predictable from physical laws was not at all easy for physicists of the older tradition to accept. Even Einstein, one of the architects of quantum mechanics, never completely accepted the indeterminism of chance which it implies. This is the origin of his intuitive response, "Herr Gott würfelt nicht"—the Lord God doesn't throw dice! It is interesting to note also that Russian communism, with its roots in Nineteenth-Century determinism, for a long time took a strong doctrinaire position against the new physics of quantum mechanics.

When scientists pressed on to examine still other realms outside our common experience, further surprises were found. For objects of much higher velocities than we ordinarily experience, relativity shows that very strange things happen. First, objects can never go faster than a certain speed, regardless of how hard they are pushed. Their absolute maximum speed is that of light—186,000 miles per second. Further, when objects are going fast, they become shorter and more massive—they change shape and also weigh more. Even time moves at a different rate; if we send a clock off at a high velocity, it runs slower. This peculiar behavior of time is the origin of the famous cat-kitten conceptual experiment. Take a litter of six kittens and divide them into two groups. Keep three of them on earth, send the other three off in a rocket at a speed nearly as fast as light,







and after one year bring them back. The earth kittens will obviously have become cats, but the ones sent into space will have remained kittens. This theory has not been tested with kittens, but it has been checked experimentally with the aging of inanimate objects and seems to be quite correct. Today the vast majority of scientists believe it true. How wrong, oh how wrong were many ideas which physicists felt were so obvious and well-substantiated at the turn of the century!

Scientists have now become a good deal more cautious and modest about extending scientific ideas into realms where they have not yet been thoroughly tested. Of course, an important part of the game of science is in fact the development of general laws that can be extended into new realms. These laws are often remarkably successful in telling us new things or in predicting things which we have not yet directly observed. And yet we must always be aware that such extensions may be wrong, and wrong in very fundamental ways. In spite of all the changes in our views, it is reassuring to note that the laws of Nineteenth-Century science were not so far wrong in the realm in which they were initially applied—that of ordinary velocities and of objects larger than the point of a pin. In this realm they were essentially right, and we still teach the laws of Newton or of Maxwell, because in their own important sphere they are valid and useful.

We know today that the most sophisticated present scientific theories, including modern quantum mechanics, are still incomplete. We use them because in certain areas they are so amazingly right. Yet they lead us at times into inconsistencies which we do not understand, and where we must recognize that we have missed some crucial idea. We simply admit and accept the paradoxes and hope that sometime in the future they will be resolved by a more complete understanding. In fact, by recognizing these paradoxes clearly and studying them, we can perhaps best understand the limitations in our thinking and correct them.

With this background on the real state of scientific understanding, we come now to the similarity and near identity of science and religion. The goal of science is to discover the order in the universe, and to understand through it the things we sense around us, and even man himself. This order we express as scientific principles or laws, striving to state them in the simplest and yet most inclusive ways. The goal of religion may be stated, I believe, as an understanding (and hence acceptance) of the purpose and meaning of our universe and how we fit into it. Most religions see a unifying and inclusive origin of meaning, and this supreme purposeful force we call God.

Understanding the *order* in the universe and understanding the *purpose* in the universe are not identical, but they are also not very far apart. It is interesting that the Japanese word for physics is *butsuri*, which translated means simply *the reasons for things*. Thus we readily and inevitably link closely together the nature and the purpose of our universe.

What are the aspects of religion and science which often make them seem almost diametrically opposite? Many of them come, I believe, out of differences in language used for historical reasons, and many from quantitative differences which are large enough that unconsciously we assume they are qualitative ones. Let us consider some of these aspects where science and religion may superficially look very different.

### Job and Einstein, Men of Faith

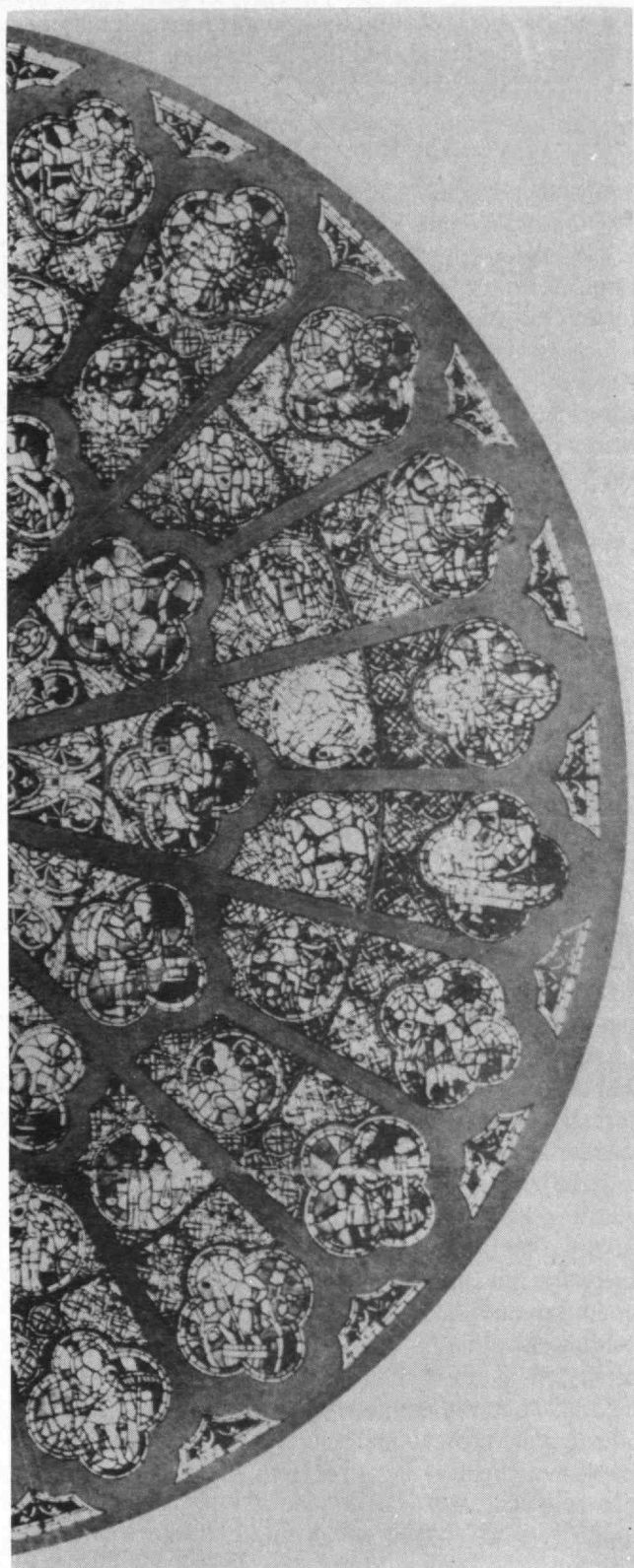
The essential role of faith in religion is so well known that it is usually taken as characteristic of religion, and as distinguishing religion from science. But faith is essential to science too, although we do not so generally recognize the basic need and nature of faith in science.

Faith is necessary for the scientist to even get started, and deep faith necessary for him to carry out his tougher tasks. Why? Because he must be personally committed to the belief that there is order in the universe and that the human mind—in fact his own mind—has a good chance of understanding this order. Without this belief, there would be little point in intense effort to try to understand a presumably disorderly or incomprehensible world. Such a world would take us back to the days of superstition, when man thought capricious forces manipulated his universe. In fact, it is just this faith in an orderly universe, understandable to man, which allowed the basic change from an age of superstition to an age of science, and has made possible our scientific progress.

Another aspect of the scientist's faith is the assumption of an objective and unique reality which is shared by everyone. This reality is of course mediated by our senses and there may be differences in individual interpretation of it. However, Berkeley's idea that the world springs entirely from the mind, or the possible existence of two or more valid but discordant views of the world are both quite foreign to scientific thinking. To put it more simply, the scientist assumes, and his experience affirms, that truth exists.

The necessity of faith in science is reminiscent of the description of religious faith attributed to Constantine: "I believe so that I may know." But such faith is now so deeply rooted in the scientist that most of us never even stop to think that it is there at all.

Einstein affords a rather explicit example of faith in order, and many of his contributions come from intuitive devotion to a particularly appealing type of order. One of his famous remarks is inscribed in German in Fine Hall at Princeton: "God is very subtle, but he is not malicious." That is, the world which God has constructed may be very intricate and difficult for us to understand, but it is not arbitrary and illogical. Einstein spent the last half of his life looking for a unity between gravitational and electromagnetic fields. Many physicists feel that he was on the wrong track, and no one yet knows whether he made any substantial progress. But he had faith in a great vision of unity and order, and he worked intensively at it for thirty years or more.





Einstein had to have the kind of dogged conviction that could have allowed him to say with Job, "Though he slay me, yet will I trust him."

For lesser scientists, on lesser projects, there are frequent occasions when things just don't make sense and making order and understanding out of one's work seems almost hopeless. But still the scientist has faith that there is order to be found, and that either he or his colleagues will some day find it.

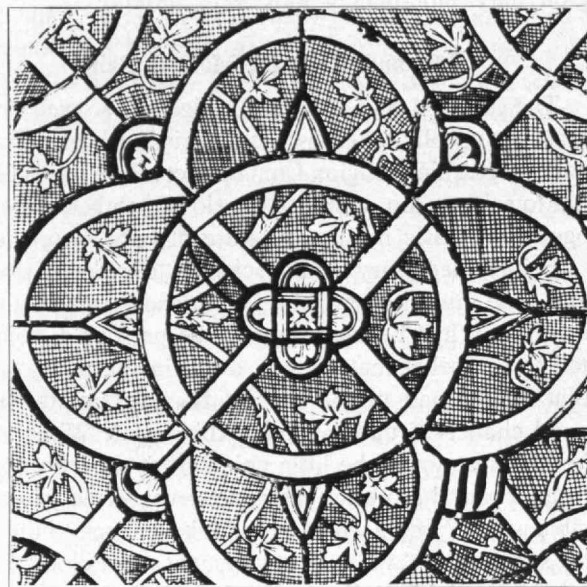
### The Role of Revelation

Another common idea about the difference between science and religion is based on their methods of discovery. Religion's discoveries often come by great revelations. Scientific knowledge, in the popular mind, comes by logical deduction, or by the accumulation of data which is analyzed by established methods in order to draw generalizations called laws. But such a description of scientific discovery is a travesty on the real thing. Most of the important scientific discoveries come about very differently and are much more closely akin to revelation. The term itself is generally not used for scientific discovery, since we are in the habit of reserving revelation for the religious realm. In scientific circles one speaks of intuition, accidental discovery, or says simply that "he had a wonderful idea."

If we compare how great scientific ideas arrive, they look remarkably like religious revelation viewed in a non-mystical way. Think of Moses in the desert, long troubled and wondering about the problem of saving the children of Israel, when suddenly he had a revelation by the burning bush. A similar pattern is seen in many of the revelations of the Old and New Testaments. Think of Gautama the Buddha who traveled and inquired for years in an effort to understand what was good, and then one day sat down quietly under a Bo tree where his ideas were revealed. Similarly, the scientist, after hard work and much emotional and intellectual commitment to a troubling problem, sometimes suddenly sees the answer. Such ideas much more often come during off-moments than while confronting data. A striking and well-known example is the discovery of the benzene ring by Kekulé, who while musing at his fire-side was led to the idea by the vision of a snake-like molecule taking its tail in its mouth. We cannot yet describe the human process which leads to the creation of an important and substantially new scientific insight. But it is clear that the great scientific discoveries, the real leaps, do not usually come from the so-called "scientific method," but rather more as did Kekulé's—with perhaps less picturesque imagery, but by revelations which are just as real.

### How Much Proof?

Another popular view of the difference between science and religion is based on the notion that religious ideas depend only on faith and revelation while science succeeds in actually proving its points. In this view, proofs give to scientific ideas a certain kind of absolut-

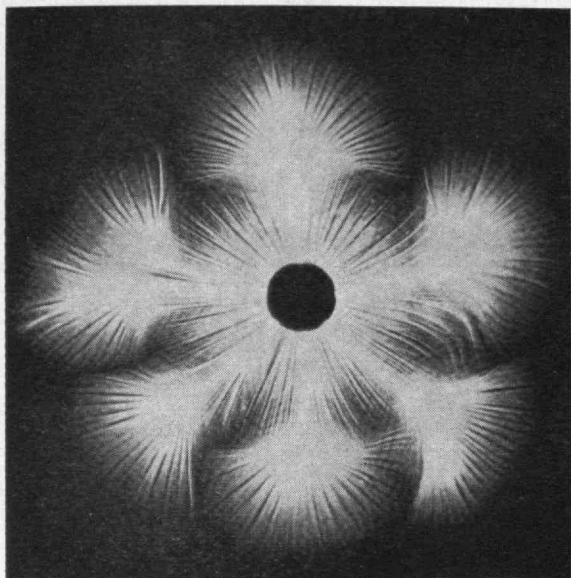


ism and universalism which religious ideas have only in the claims of their proponents. But the actual nature of scientific "proof" is rather different from what this approach so simply assumes.

Mathematical or logical proof involves choice of some set of postulates, which hopefully are consistent with one another and which apply to a situation of interest. In the case of natural science, they are presumed to apply to the world around us. Next, on the basis of agreed-on laws of logic, which must also be assumed, one can derive or "prove" the consequences of these postulates. How can we be sure the postulates are satisfactory? The mathematician Gödel has shown that in the most generally used mathematics, it is fundamentally impossible to know whether or not the set of postulates chosen are even self-consistent. Only by constructing and using a new set of master postulates can we test the consistency of the first set. But these in turn may be logically inconsistent without the possibility of our knowing it. Thus we never have a real base from which we can reason with surety. Gödel doubled our surprises by showing that, in this same mathematical realm, there are always mathematical truths which fundamentally cannot be proved by the approach of normal logic. His important proofs came only about three decades ago, and have profoundly affected our perspective on human logic.

There is another way by which we become convinced that a scientific idea or postulate is valid. In the natural sciences, we "prove" it by making some kind of test of the postulate against experience. We devise experi-





ments to test our working hypotheses, and believe those laws or hypotheses are correct which seem to agree with our experience. Such tests can disprove an hypothesis, or can give us useful confidence in its applicability and correctness, but can never give proof in any absolute sense.

Can religious beliefs also be viewed as working hypotheses, tested and validated by experience? To some this may seem a secular and even an abhorrent view. In any case, it discards absolutism in religion. But I see no reason why acceptance of religion on this basis should be objectionable. The validity of religious ideas must be and has been tested and judged through the ages by societies and by individual experience. Is there any great need for them to be more absolute than the law of gravity? The latter is a working hypothesis whose basis and permanency we do not know. But on our belief in it, as well as on many other complex scientific hypotheses, we risk our lives daily.

Science usually deals with problems which are so much simpler and situations which are so much more easily controllable than does religion that the quantitative difference in directness with which we can test hypothesis generally hides the logical similarities which are there. The controlled experiment on religious ideas is perhaps not possible at all, and we rely for evidence primarily on human history and personal experience. But certain aspects of natural science, and the extension of science into social sciences, have also required similar use of experience and observation in testing hypotheses instead of only easily reproducible experiments.

Suppose now that we were to accept completely the proposition that science and religion are essentially similar. Where does this leave us and where does it lead us? Religion can, I believe, profit from the experience of science where the hard facts of nature and the tangibility of evidence have beaten into our thinking some ideas which mankind has often resisted.

### So What?

First, we must recognize the tentative nature of knowledge. Our present understanding of science or of religion is likely, if it agrees with experience, to continue to have an important degree of validity just as does the mechanics of Newton. But there may be many deeper things which we do not yet know and which, when discovered, may modify our thinking in very basic ways.

We must also expect paradoxes, and not be surprised nor unduly troubled by them. We know of paradoxes in physics, such as that concerning the nature of light, which have been resolved by deeper understanding. We know of some which are still unresolved. In the realm of religion, we are troubled by the suffering around us and its apparent inconsistency with a God of love. Such paradoxes confronting science do not usually destroy our faith in science. They simply remind us of a limited understanding, and at times provide a key to learning more.

Perhaps there will be in the realm of religion cases of the uncertainty principle, which we now know is such a characteristic phenomenon of physics. If it is fundamentally impossible to determine accurately both the position and velocity of a particle, it should not surprise us if similar limitations occur in other aspects of our experience. This opposition in the precise determination of two quantities is also referred to as complementarity; position and velocity represent complementary aspects of a particle, only one of which can be measured precisely at any one time. Nils Bohr has already suggested that perception of man, or any living organism as a whole, and of his physical constitution represents this kind of complementarity. That is, the precise and close examination of the atomic makeup of man may of necessity blur our view of him as a living and spiritual being. In any case, there seems to be no justification for the dogmatic position taken by some that the remarkable phenomenon of individual human personality can be expressed completely in terms of the presently known laws of behavior of atoms and molecules. Justice and love may be another example of complementarity. A completely loving approach and the simultaneous meeting out of exact justice hardly seem consistent. These examples could be only somewhat fuzzy analogies of complementarity as it is known in science, or they may indeed be valid though still poorly defined occurrences of the uncertainty principle. But in any case, we should expect such occurrences and be forewarned by science that there will be fundamental limitations to our knowing everything at once with precision and consistency.

*(Continued on page 64)*



Only a few products of man or nature have retained  
so much character after so many years.



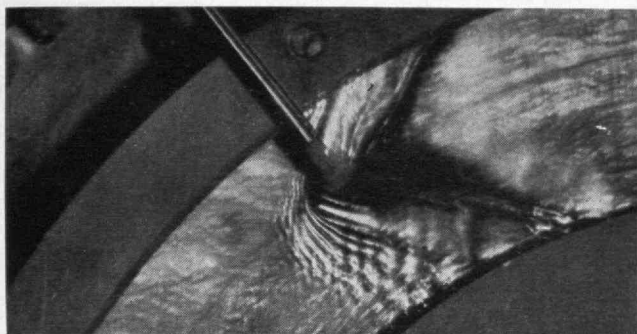
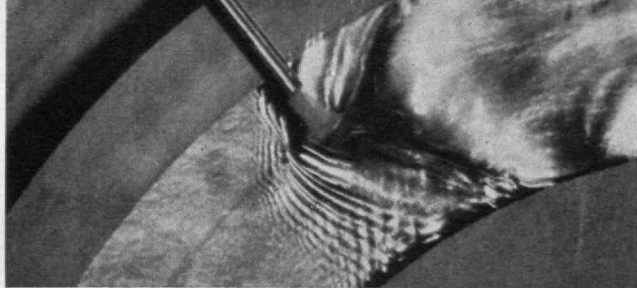
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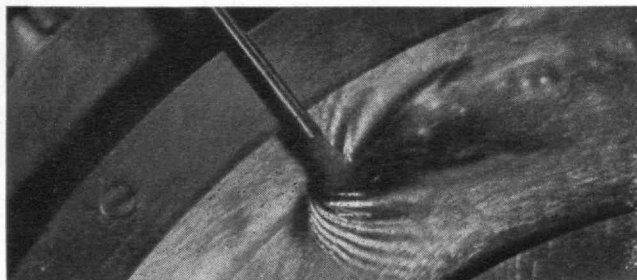
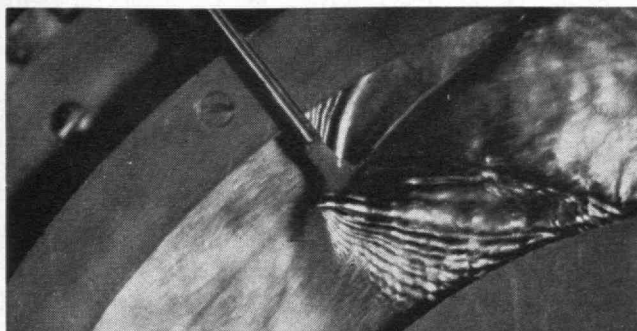
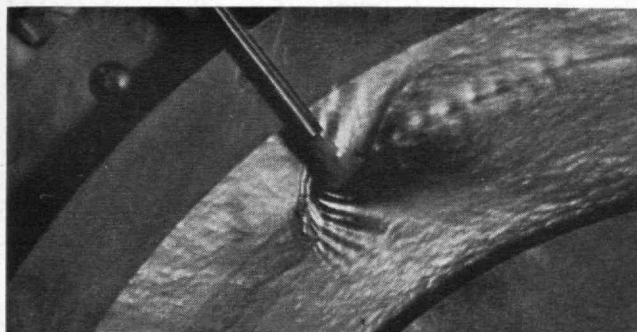
The Kerite Company, 30 Church Street, New York, New York 10007





*"Prenez intérêt à ces demeures que l'on désigne du nom expressif de laboratoires, demandez que l'on les multiplie et que l'on les orne: ce sont les temples de l'avenir, de la richesse et du bien-être. C'est là que l'humanité grandit, se fortifie et devient meilleure."*  
—Louis Pasteur.

## EVOLUTION OF A LABORATORY



Surface waves in mercury in a perpendicular magnetic field.

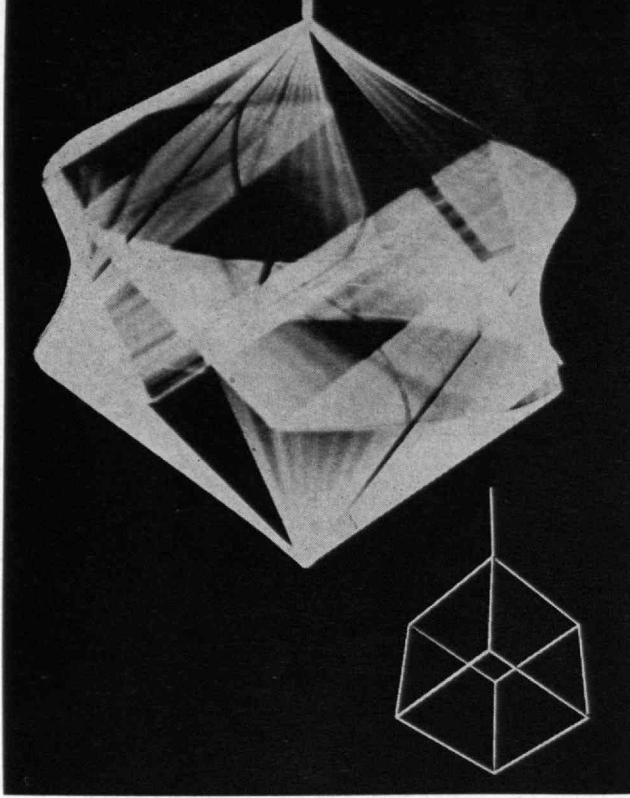
"As a pooling of intellectual forces and disciplines for a concentrated attack on a scientific or technical objective, the [M.I.T.] Radiation Laboratory was to be matched only by the operations of the Manhattan District," writes President Julius A. Stratton, '23. Yet, with the advent of peace there arose an anxiety that the nation might dissipate the great scientific resources built during the years of World War II. Dr. Stratton recalls "our fear that the priceless physical treasures of the Radiation Laboratory might at any moment be shipped off to some nameless warehouse . . ."

Such was not to be the case, and out of the Radiation Laboratory grew M.I.T.'s eminent Research Laboratory of Electronics—"a new departure in the organization of academic research." In the 20 years since RLE was founded, 2000 degrees (400 of them doctorates) have been awarded to students who worked in the laboratory and, notes present Director Henry J. Zimmerman, RLE has functioned as a prime generator of educational change. As one statistical mark of its scope and activity, the laboratory has published some 440 technical reports, more than 1,000 journal papers, more than a dozen M.I.T. Press Research Monographs and an unknown but substantial number of books.

This year RLE will observe its 20th anniversary with a special program on May 10-12. After a review and general discussion of its technical work, the laboratory will present two panel discussions on May 11—a morning session on RLE's impact on education, and an afternoon discussion of the laboratory's relation to government and industry.

Participants will include the three former directors of the laboratory, President Stratton, (the first director) Dean Jerome B. Wiesner of the School of Science, and Albert G. Hill, Professor of Physics. On the following pages are major excerpts from essays that they wrote on the occasion of the anniversary.





Transformations that create optical illusions are important to our understanding of visual information processing.

**I**t is a bit hard to recall just how it all started, for my memories of the early days of R.L.E. and the growth of the communication sciences are so packed that I have little left of a sense of time, and even my recall of individual events is far less than complete. My overwhelming impression is really an emotional one; what a unique and wonderful experience to spend a major part of my adult life and perhaps the most enjoyable period of it in this atmosphere—a sentiment that I gather from conversations is shared almost universally by my colleagues of the period. Perhaps this is just normal nostalgia of men who have grown responsible and proper for the freer time of their youth.

But I think that it is more, for we shared the ferment and excitement of discovering for ourselves the universal role of communication processes in man's universe. Perhaps, as seen from our present wiser perspective, we were over-excited and hoped for too much, but if so, we didn't know it. Fired up by Norbert Wiener's cybernetics, we explored the far-ranging implications of the concepts of information and communication theory; our interests ranged from man-made communication and computing systems to the sciences of man, to inquiries into the structure and development of his unique nervous system, the phenomena of his inner life, and finally his behavior and relation to other men.

All of this took place in that unique scientific incubator, the Research Laboratory of Electronics, which for

## Jerome B. Wiesner

two decades has remained an almost ideal research environment and a model for other research centers as they came into being.

When the Research Laboratory of Electronics was created with a charter that agreed only "to do basic research in the field of electronics," no one knew just where this license would lead. Those of us who had spent our war years as plumbers in the Radiation Laboratory, and expected somehow to employ our knowledge of the new microwave technology usefully, could hardly imagine the excitement and intellectual pleasure that lay ahead of us.

In fact, as I look back on twenty years of the communications sciences at M.I.T., I have the impression of powerful personalities and even more powerful ideas drawing people together from all over the world to a firmament, plasma-like in intensity. My memory is a great pleasant blur, not unlike my mental movie of the spontaneous creation of the universe. In it the most elementary particles of matter appear everywhere uniformly and are drawn by gravitational forces into an ever denser cluster; collisions and interactions become more and more frequent and from this violence and disorder flows a never-ending chain of atoms and molecules of increasing complexity. I gather that this particular model of the creation of the universe is no longer popular, for the big-bang theory of the universe seems to fit the observed data better. To be consistent with this, we have merely to change the time scale and to make the two decades of R.L.E. look like an instantaneous explosion of knowledge.

Norbert Wiener drew the communication sciences together at M.I.T. The ideas were in the air. Shannon's [Claude E. Shannon, now Donner Professor of Science], and Wiener's own wartime activities, the interest in signals and noise problems that many of us had developed, all contributed; but Wiener was the catalyst, though catalyst is a lukewarm description of his role. Ordinarily one thinks of a catalyst as a passive participant in a reaction. The platinum surface to which atoms cling to form compounds gives nothing of itself to the new creation. Wiener, the catalyst, sought out his atoms and drew them together.

Many can remember Norbert's daily visits around the Institute from office to office and his conversations that always began with, "How's it going?", for which he never waited for an answer before sailing into his latest idea. "By the way," he would say, "have you heard about what Arturo and I have been thinking?"

Or, "Have you heard about what Walter Rosenblith has said?" Sometimes he was disturbed: Someone had challenged one of his ideas; or he had become convinced that some foolish action of the President or Secretary of State was going to catapult the world into oblivion. "Do you think there is going to be a war?" was his standard question on those blue days. Whatever was on his mind, Norbert Wiener's visit was one of the high points of the day at M.I.T. for me and many others. For those of us working in the lonely isolation of Building 20, Norbert's visits were especially welcome, for he was one of our best links with the "main" buildings.

Prior to World War II, Norbert—working with Julian Bigelow and Arturo Rosenbluth—had begun to explore feedback mechanisms in living systems and apparently sensed the generality of the feedback idea and its importance in the learning and control systems within living organisms and social organizations. An extremely interesting account of this early research is given in the introduction to "Cybernetics." The war had called a halt to active exploration of these ideas but not to the speculations and imagination that went on in Wiener's active mind. The unity of the set of problems centering around signal and noise, communication and control had already made its impression on him. In fact, his wartime work on the design of optimum filters for the separation of signals and noise gave him new insights into these challenging questions. Here was a springboard for Norbert's postwar activities, as well as the stimulus for the work of many of the rest of us, including Yuk-Wing Lee and myself.

During the war, Wiener extended and consolidated his work on random processes, which related back to his interest in Brownian motion problems, and published it in the famous "Extrapolation, Interpolation and Smoothing of Stationary Time Series," better known to professionals as the "Yellow Peril." In 1948, Norbert Wiener published his most exciting work, "Cybernetics," the book which was to project both Wiener and communication theory midstage into the consciousness of scientists and philosophers. Wiener, the cybernetician, gave the general public its image of the scientist.

Wartime activity led Claude Shannon to develop his mathematical theory of communication. (At that time Shannon was at Bell Labs, and he joined R.L.E. in the mid-50's.) By defining a unit of information and showing the relationship between signals, noise, and

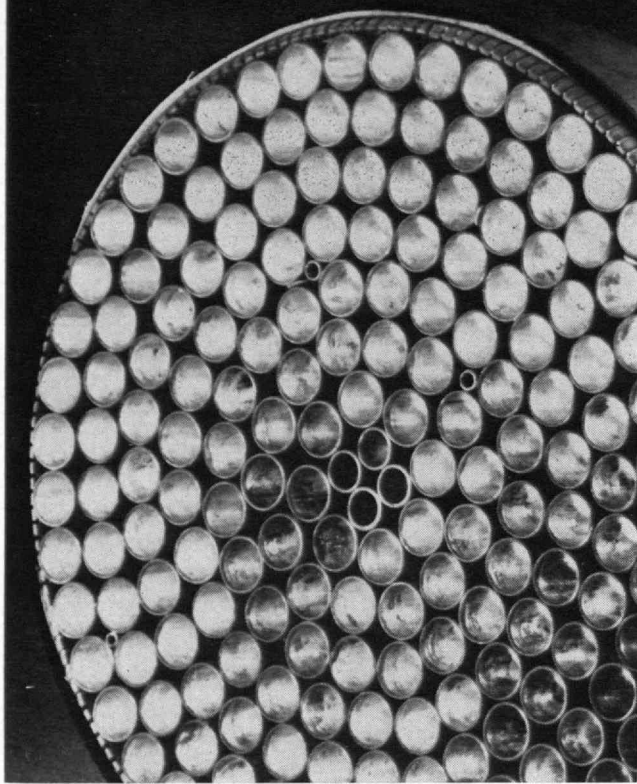
rate of transmission of information, he provided a conceptual basis for the attack on communication problems. Together Shannon and Wiener aroused the interest of those people all over the world whose activities brought them into contact with the mysterious "non-physical" properties of ensembles that stem from their organized complexity, i.e., their symbolic and informational aspects. In the forefront were the more thoughtful communication engineers who had long been troubled by the fact that they did not understand the commodity they were handling. They could not see it or measure it or know why it changed as it was manipulated.

The communication engineers were not alone in their enthusiasm for new ideas. Neurophysiologists and other biologists, linguists, economists, social scientists, and psychologists of the various persuasions recognized almost intuitively the usefulness and relevance of feedback and information theory concepts to their fields. For all of them, the concepts of information theory, coding, feedback, prediction, and filtering provided new ways to explore paths that seemed to wind unendingly. Even before the publication of "Cybernetics," Wiener was working hard to stimulate general appreciation of and interest in the broad applicability of these emerging ideas.

To this end he organized dinner meetings for a diverse (the label "interdisciplinary" stuck) group of scientists and engineers. Together they explored each other's fields and slowly began to comprehend each other's lingo and exhibit that spirit and mental intoxication that characterizes the pursuit of an exciting new idea. The meetings usually included the normal pre-dinner warmup. Dinnertime talk was always very animated and, though a bit rambling, tended to explore the special interests of the evening's guests. Usually one member of the group gave a somewhat formal talk about his work, trying to relate it to the more general notions of communications that were closest to Wiener's heart.

I remember discussions on neural transmission mechanisms, organization of the brain, signal and noise problems in radar systems, feedback in communication systems, stability in servomechanisms, auditory processes, research on vision, the effects of drugs on the neural system, and many other similar questions. These talks were expected to be short, but interruptions and diversionary arguments were frequent so that the

*(Continued on page 68)*



Part of microwave choke for a high-energy plasma generator.

Only rarely can one fix precisely the beginning of an idea. The Research Laboratory of Electronics was, in fact, the expression of ideas that began to emerge at M.I.T. at least a decade before the end of the war.

Those of us who were here at M.I.T. in the Twenties and Thirties can recall the emergence in those years of an intense and widening interest in the new fields of communications and electromagnetic theory. This started first in the Electrical Engineering Department, but soon spread to Physics and Mathematics.

At the outset the progress of communications engineering at the Institute owed most to the initiative and leadership of Edward L. Bowles [’22], who established new laboratories and brought in many young faculty members who were to play a prominent part in later developments.

In the Physics Department, Wayne Nottingham was absorbed with his research on cathode emission and physical electronics. Among his many students were James B. Fisk [’31], David B. Langmuir [’35], and Ralph P. Johnson [’36].

Thus, in the years before World War II, a substantial number of our faculty were preoccupied with a host of practical and theoretical questions ranging from the generation of microwaves and the design of high frequency circuits to the properties of electron gases and the study of electromagnetic radiation and boundary value problems. Out of these interests there grew a remarkable spirit of collaboration between the

## Julius A. Stratton

physicists and the electrical engineers. A whole new field of effort began to emerge, focusing our attention upon a closely-knit set of problems which we can now identify as electronics. Indeed, in his President’s Report for 1939, Karl Compton made special mention of the related research projects which were coalescing “into wide-ranging programs breaking across departmental boundaries and involving cooperation with outside agencies.

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In September a year later, the Tizard Mission arrived from Britain to disclose the design of a magnetron for the generation of microwaves and to ask for American help in the development of an airborne radar to be used for night fighters in the defense of Britain. The National Defense Research Council responded to that appeal, and after an extensive discussion of the relative merits of the Government, of industry, and of the university as a possible contractor, the task was entrusted to M.I.T.

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Over the next five years the Radiation Laboratory drew to our campus physicists, mathematicians, chemists, biologists, engineers, and even architects and historians, from every part of the country. As a pooling of intellectual forces and disciplines for a concentrated attack on a scientific objective, the Radiation Laboratory was to be matched only by the operations of the Manhattan District.

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The Radiation Laboratory’s efforts had produced not only hardware, but had resulted also in enormous advances in the entire field of electronics. And with our own background at M.I.T. in these areas of science and engineering, we were presented with a unique opportunity to play a leading role in their further development.

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The stage was thus set; but it was John Slater who brought all our ideas into focus, who clearly defined the concept of a new kind of laboratory, and who took the initiative that led . . . to the establishment of RLE. . . . Beginning in August, 1944, he set forth through a series of letters and in conferences the main lines of his proposal. In a memorandum dated August 28 of a meeting with President Compton, Dean Harrison, Professor Hazen and myself, Professor Slater outlined so clearly the steps which were to follow that I shall quote it in part as a matter of historical record:

“The field of Electronics clearly lies jointly in the two wider fields of Physics and Electrical Engineering, and



the development should be undertaken jointly by the two departments. In the discussion, this led to the proposal of an Electronics Laboratory, established jointly by the two departments, not constituting a separate department, but still having an independent existence, under its own director. The top organization might consist of the director, who would be a regular member of one or the other department, as well as holding his position in the Electronics Laboratory; and a steering committee, consisting of approximately equal numbers of representatives of each department. Associated with the laboratory would be such senior staff members, instructors, assistants and teaching fellows, and graduate students of each department as were interested. At the same time the laboratory would have a budget of its own, and could have personnel of its own, such as research associates, assistants, and technicians. As very rough guesses, it was estimated that the total personnel of the laboratory, including staff members and graduate students of both departments associated with it, and scientific personnel of the laboratory itself, might be of the order of 60 to 75. It was felt most desirable that the laboratory have its own shop and other technical facilities, though there would undoubtedly be interchange of work with the Physics and Electrical Engineering shops. It was thought likely that after the laboratory had been in operation for a period the larger part of its financial support might well be derived from industry . . ."

Slater then suggested that the new enterprise be named the "Research Laboratory of Electronics."

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When the OSRD was dissolved a highly ingenious plan was devised to conserve some of the [Radiation] laboratory's most precious resources and to facilitate the transition from war to peace. From the very outset, the technical mission of radar development had been supported by a substantial amount of fundamental research. It spanned such fields as physical electronics, microwave physics, the electromagnetic properties of matter, and the underlying principles of microwave communications. Following V-J Day, a new Division of Basic Research was created to incorporate and administer the remainder of this program. With the end of December, the Radiation Laboratory as a formal organization came to a close, and the new Research Laboratory of Electronics assumed responsibility for the program. . . . Questions as to title to equipment and future funding were unresolved, but a continuity of research effort was for the moment assured.

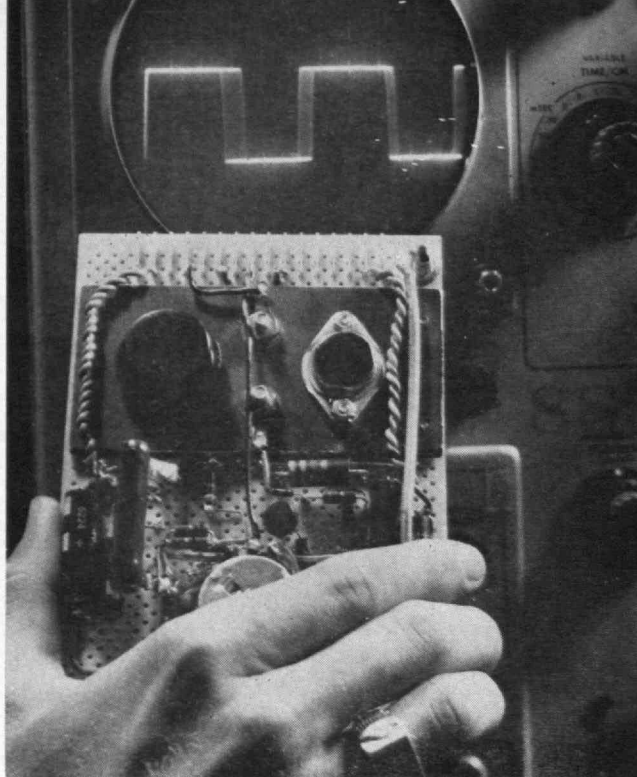
Fortunately for science, for the universities, and for the country, various agencies of the Armed Services stepped promptly into the breach and undertook the sponsorship of basic research in academic institutions on an unprecedented scale. The Research Laboratory of Electronics in particular owed its first major and continuing support to this foresight and initiative. In March of 1946, a task contract was drawn up providing for joint support by the Army Signal Corps, the Navy, and the Army Air Force. By common accord, the Signal Corps was chosen as the administrating agency.

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Even more important than financial aid was a provision for the transfer of title to Radiation Laboratory apparatus from the NDRC to the Signal Corps, and thence ultimately to RLE. Indeed, our fear that the priceless physical treasures of the Radiation Laboratory might at any moment be shipped off to some nameless warehouse was with us even during those critical months of negotiation. But on July 1, 1946, all association with NDRC came to an end; the new sponsorship took effect, and the RLE was on its course.

Looking back over the twenty years, I recall that more than one member of the faculty greeted the very idea of military support with undisguised concern. The image of academic research as we had known it in the Thirties still dominated, and military affairs had no part of it. As it turned out, a more harmonious, understanding relationship between a sponsor and a research laboratory would be difficult to imagine. The common projects of the war had resulted in innumerable personal friendships and had gone far to break down the barriers that traditionally separated the academic from the military estate. But also out of those war years there emerged in the military services an extraordinarily effective group of technical planners and leaders, including the three members of our first advisory committee, Lieutenant Colonel Harold Zahl, Lieutenant Commander Emmanuel Piore, and Mr. John Keto, who represented an enlightened viewpoint. It was based upon a sincere conviction that at that juncture in time, and for the long term, basic research was the best possible investment for national defense. From the outset every effort was made to establish and maintain in the Laboratory an environment favorable to serious scholarship. There were no pressures toward "mission orientation." All work under the basic task was unclassified. There was freedom of access, complete freedom of publication. The contract was admin-

(Continued on page 61)



Oscilloscope displays signal of two-state transistor switching circuit designed to be a highly efficient audio amplifier.

**T**he overriding considerations of almost everyone in 1945 were the successful conclusion of World War II and the return to peace. The arts of warfare, at least in a technical sense, has been learned by many and applied to weapons development. The need for this was past. The desire to return to a peaceful existence was uppermost in the minds of the American scientific community. The threats of war and of the dread success of atomic weapons were not forgotten, but these were things that concerned diplomats and the body politic, and the desire of scientists was to return to that science which had been neglected for so many wartime years.

The need for science had never been apparent in a broad sense to the American people and their government before its use in military development during World War II. The terms of reference of science and the citizen had altered. Science had changed from the proprietary ivory tower interest of the few to the property and concern of the many. Although science per se had been neglected during World War II, scientists had not; and the voices of scientists were now, for the first time in peace, sought at the highest governmental levels.

Since peace and peaceful ways were uppermost in the minds of the scientific community, why then military support? First of all, from the simple matter of expediency there was no other support, and science had to come into its own. Secondly, those of us responsible for carrying out this program took the point of view that

## Albert G. Hill

eternal vigilance was the price of keeping science alive without becoming subservient to military needs. It is the writer's opinion that the dangers of military support of science in this country were greatly overstressed at the time, but probably the overstressing served to keep both military sponsor and the scientific sponsored aware of the danger.

Nevertheless, there came the time in early 1946 when the Navy's Bureau of Aeronautics approached RLE on the possibility of developing a guidance system for the Meteor missile. After much soul-searching, it was recognized that this was, indeed, an advanced engineering project, that both applied research and advanced development were required in its execution, and that it had many attractive features for engineering pedagogy. The assignment was accepted, but only after assurance that minimal security requirements would be placed upon the project. Twenty years later, it is pleasant to report that the project was much more successful academically than militarily. The Meteor project never came into fruition as a weapons system, but the guidance principles developed in the Research Laboratory of Electronics have been widely used, and the number of engineering students supported and trained in the broad engineering principles of guidance and control has been great.

That the world was not the stable place we had dreamed of in August 1945 soon became apparent. In this period many of us undoubtedly recalled our relations as scientists to governmental problems, especially military, and I think we all felt that should an emergency arise, we were ready and able to re-attack military problems. Many of us were on technical advisory committees to the military services and were somewhat abreast of current military problems. Furthermore, none of us thought that the Russians' lack of "know-how" would inhibit their getting an atomic bomb, and most of us thought five years was an ample period. However, when we first thought "five years", we meant August 1950; as time went on, we kept saying "five years" and thinking five years from "now." Hence it was with a certain amount of surprise and shock that the announcement of the Russian explosion in the fall of 1949 was received.

The reaction of the scientific community to the new military situation took two general paths, in both of which RLE participated, and which can be exemplified under the headings "Summer Studies" and "Air Defense of North America".

As a country, we are now well into our eighteenth year of both famous and infamous summer studies. The

term connotes both a method of activity and a state of mind. The direct relationship between summer studies and RLE is not clearly demonstrable. However, the scientific cadre at RLE and at other academic organizations both within and away from M.I.T. was readily available for attention to special problems such as the term "Summer Study" now implies.

The first such study was Project Lexington, which was conducted by M.I.T. during the summer of 1948 and staffed by scientists from many institutions. Its assigned task, to which it adhered, was to determine "the technical feasibility of nuclear-powered flight." We now know that the purpose should have been broadened to include "desirability" as well as feasibility, and even during the course of the study some members protested, vainly, that technical feasibility was an empty attribute until the economics, and other methods of achieving the same end, were examined. (It is doubtful to this writer that the desired end-product has ever been defined.) Unfortunately, as it developed, nuclear-powered flight was deemed technically feasible, but its desirability from the point of view of performance and economics has never been proved. Some three billion dollars and untold scientific man-hours later, we have come up with a product worth perhaps 5 per cent of the total expenditure.

The second well-known summer study was Project Hartwell, conducted at M.I.T. on behalf of the U.S. Navy and including some of the same personnel as Project Lexington. The problem first addressed to M.I.T. was "to find new ways of detecting submarines." Professor J. R. Zacharias, on being asked to direct Hartwell, reacted more or less as follows: "To ask 25 first-rate scientists to spend their summer chasing one invention is a waste of time. Ninety-five per cent of the people I ask will refuse. Surely there must be something behind the detection of submarines, and I suspect that it is the security of overseas transportation and harbor defense." The recipients of this statement included Admiral Forrest Sherman, then Chief of Naval Operations, and he quickly acquiesced, changing the narrow component project into a broad systems study.

With this new point of view, an outstanding group was assembled at the M.I.T. Field Station in Lexington for the three summer months of 1950, and from their deliberations came the following diverse accomplishments: The Mariner class of merchant vessels; the SOSUS submarine detection system; the atomic depth charge; a whole new look at radar, sonar, and magnetic detection; and a good deal of research on oceanography.

Hartwell has often been called the most successful of all summer studies (generically, ad hoc studies). Whether this broad and categorical statement is true is not important to this essay. But there is no dispute that this project was highly successful. Part of its success was certainly due to the timing, in which new ideas could be brought to bear on a problem which had a solution. From this writer's point of view, however, what made the project really good was the wisdom of the two gentlemen already mentioned, namely Dr. Zacharias and Admiral Sherman. The Admiral had no hesitation in making all of the wisdom and knowledge of the Navy available to the project and would brook no parochial or bureaucratic point of view. Dr. Zacharias combined leadership and drivership in a neat package which was exhausting but extraordinarily fruitful. What is more, several major conclusions of the group had been implemented by contract or letter of intent before the end of the summer, and 500 copies of a 700-page report were delivered to ONR on the 30th of September.

Many other ad hoc groups have been assembled since on problems of importance, and in a good many of them the pattern of Hartwell was followed, and with RLE participation.

With the Russian atomic explosion in 1949, the security of the United States within its own shores became threatened for the first time since the early Nineteenth Century. The Russians, who were hardly friendly at the time, possessed both the means of destruction of our society and the means for delivery of such destruction. Shortly after the Russian atomic explosion, the Scientific Advisory Board of the U.S. Air Force established the Air Defense Systems Engineering Committee (ADSEC) under the chairmanship of Professor George Valley [35], of the M.I.T. Physics Department and Laboratory for Nuclear Science. This Committee met regularly for approximately one year, mostly in the Cambridge area, and by the late fall of 1950 had concluded that air defense was both necessary and feasible. Based on this conclusion, Generals Putt and Saville and Drs. Ridenour and Getting of the Air Staff accordingly called on Dr. Killian and Dr. Stratton and asked that M.I.T. set up a laboratory to develop implementation of certain ADSEC technical proposals. Since this was to be a major undertaking in a major systems field, M.I.T. suggested that the establishment of a laboratory be preceded by an ad hoc study (later called Project Charles) and that Army and Navy participation be solicited for

*(Continued on page 68)*



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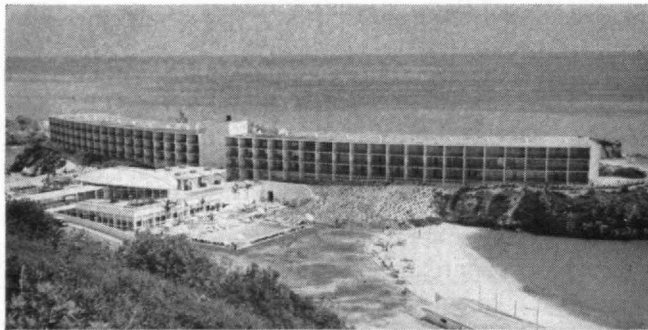
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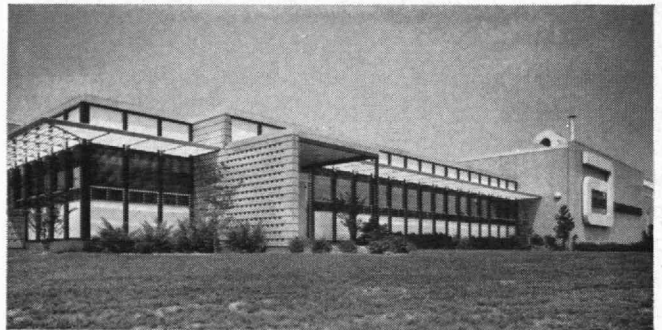
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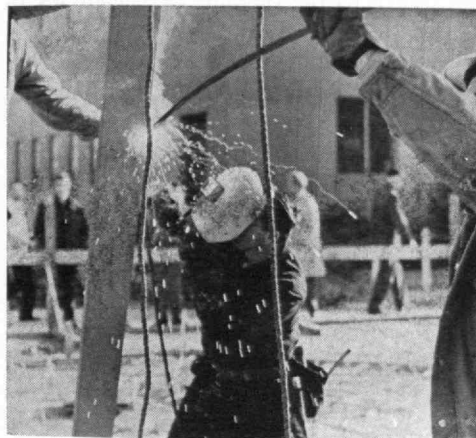
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## Hoisting 'The Big Sail'

Muffled against March winds and wearing an M.I.T. hard hat, Alexander Calder spent several days at the Institute this spring supervising the assembly of his huge steel-plate stabile, "The Big Sail." The construction site was a rendezvous for a large number of self-appointed art critics and sidewalk superintendents, and among a host of photographers was Owen D. Franken, '68, who took these pictures for The Review. The sculpture and the new McDermott Court will be dedicated on May 7.



*(Trend of Affairs continues on next page)*





(Continued from page 51)

## New Cambridge Corporation

The Cambridge Corporation, a private, non-profit organization that will assist in the development of low-rental housing and other improvements in the City of Cambridge, was activated on March 22. The Corporation will work with governmental and private community agencies to achieve orderly improvements and to deal with the human and housing requirements that will arise if the Inner Belt is to go through the city. It will put together from private contributions a revolving fund that will go as high as \$1 million. Harvard and M.I.T. have agreed to match funds from other sources up to half the total.

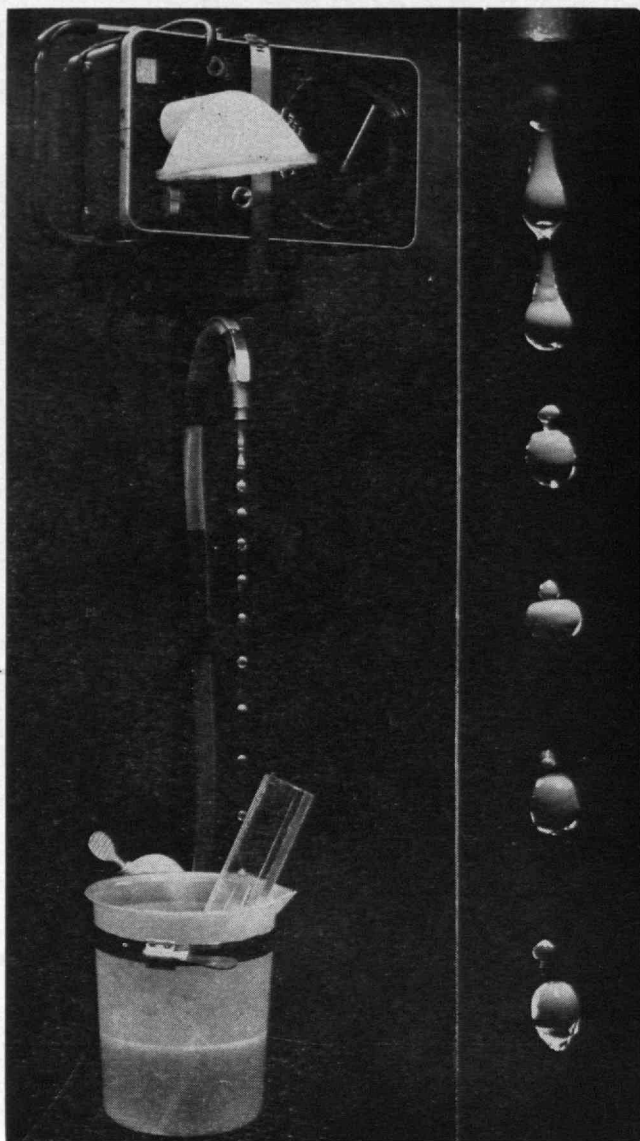
President and Chief Executive Officer of the new Corporation is Oliver Brooks of Cleveland, Ohio, who has been Vice President of Cleveland's University Circle Development Foundation, an organization similar to the Cambridge Corporation. Members of the Board of Trustees of the new organization are:

Maurice M. Cohen, President of the Cambridge Chamber of Commerce and Lechmere Sales; Charles A. Coolidge, attorney; Robert R. Duncan, retired President of the Harvard Trust Company; General James M. Gavin, Chairman, Arthur D. Little, Inc.; James R. Killian, Jr., '26, Chairman of the Corporation, M.I.T.; George E. Lakschewitz, President, East Cambridge Savings Bank; Hans F. Loeser, attorney; George A. Macomber, Chairman of the Board of the Cambridge Trust Company; the Reverend William J. McKissick of the Union Baptist Church; Nathan M. Pusey, President of Harvard University; The Most Reverend Thomas J. Riley of St. Peter's Church.

Officers of the Board, in addition to President Brooks, are Dr. Killian, Chairman; Mr. Macomber, Treasurer, and Mr. Loeser, Clerk. An Advisory Committee to be appointed in the near future will be representative of the interests of the entire Cambridge community.

The Cambridge Corporation came about after extensive discussion with many individuals and organizations in Cambridge, explained Dr. Killian, and it is seen as "an additional mechanism for bringing together the major private organizations of the community in a joint effort to respond creatively and imaginatively to the great changes that are occurring in the city and to provide concrete assistance to the officials and agencies of the city when requested."

First among the tasks of the Corporation is the development of low and moderate-rental housing. Speaking as a member of the Board, Nathan M. Pusey of Harvard said: "The housing stock in the low- and moderate-rental range is constantly shrinking. In addition to long-range development plans, our attention must now be directed to problems of relocation in Cambridge as a result of the possible construction of the Inner Belt, which would further deplete this vitally needed resource. The Corporation will do everything it reasonably can to stimulate the development of such housing on a nonprofit or limited dividend basis, using every available tool from Federal and state assistance programs. There should



Institute Professor Harold E. Edgerton, '27, uses this equipment to show transience in water drops. A 60-cycle vibrating pump recirculates water, which is illuminated with a stroboscopic light source. The close-up at right was taken with a half-second exposure at  $f/16$  on plus-X film.

be special cognizance of the needs of those who will be displaced by the Inner Belt construction."

Mayor Daniel Hayes of Cambridge welcomed the Corporation on behalf of the City, saying, "It has the potential of contributing in a major way to building a better community. As a non-profit organization, it will be able to take advantage of the many new Federal programs aimed at providing new housing at reasonable cost."

Those involved in planning the Corporation during 1965 were given financial and technical assistance by ACTION, Inc. (now Urban America, Inc.). This was made possible by a Ford Foundation grant to ACTION to encourage the growth of private development corporations. Joseph McGrath, Director of the Local Development Services Division of Urban America, pledged continued support of the activities of the Cambridge Corporation through the Ford Foundation program administered by Urban America.

(Continued on page 54)





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HE TREND OF AFFAIRS

(Continued from page 52)

## New Data on Cavity-Prevention

Phosphates added to the diet of rats are most effective in preventing tooth decay just after the teeth have erupted into the mouth but before their development is complete, according to J. M. Navia and Robert S. Harris, '28, of the M.I.T. Department of Nutrition and Food Science. There is now strong evidence, they say, that the most biologically important route for incorporating phosphates into teeth is through direct contact between tooth and food during chewing.

The M.I.T. research group that Dr. Harris heads has played an important role in recent years in uncovering and studying the cariostatic effect of phosphates added to diet. Dr. Harris first observed the phenomenon in the late 1950s when he was struck with the high incidence of cavities among New England residents and sought to determine if the problem could be related to soil minerals abundant in other regions but scarce in the northeast.

In a large series of feeding experiments, he was able to identify the cariostatic effect of phosphates. Since then, others have demonstrated the effect and large-scale investigations are underway in many centers, including one community in Ohio where school children receive phosphate-enriched diets.

In the recent study, Dr. Harris and Dr. Navia used two diets, one that was known to encourage cavities in rats and one that contained trimetaphosphate, 1.3 per cent. The fewest cavities found were in those groups whose feeding regimen included phosphate during the period of development of their teeth. These groups, the researchers said, exhibited a reduction of up to 90 per cent in cavities when compared to groups that received no phosphates during the same period. Dr. Navia reported the findings in March at the International Association for Dental Research meeting in Florida.

## The Engineer and the Public

"The final and the essential responsibility of the modern engineer is the education of the public in modern technology," says Dr. John G. Truxal, '47, Dean of Engineering at the Polytechnic Institute of Brooklyn and President of the Instrument Society of America.

Writing on "The Social Responsibilities of Engineers" in the ISA Journal, Dr. Truxal says, "Today, the young instrument engineer looks forward with anticipation to a career in which he fully expects to influence materially the well-being of his neighbors by contributing to the solutions of the problems of urbanization, of public health, or transportation. . . .

"The responsibility of the engineer is clear—to move forward as rapidly as possible with the development of the equipment and the realization of the popular and political support essential to achieve these goals, but at the same time to ensure that the technology is not exploited by charlatans to the detriment of an ignorant public."

(Continued on page 56)

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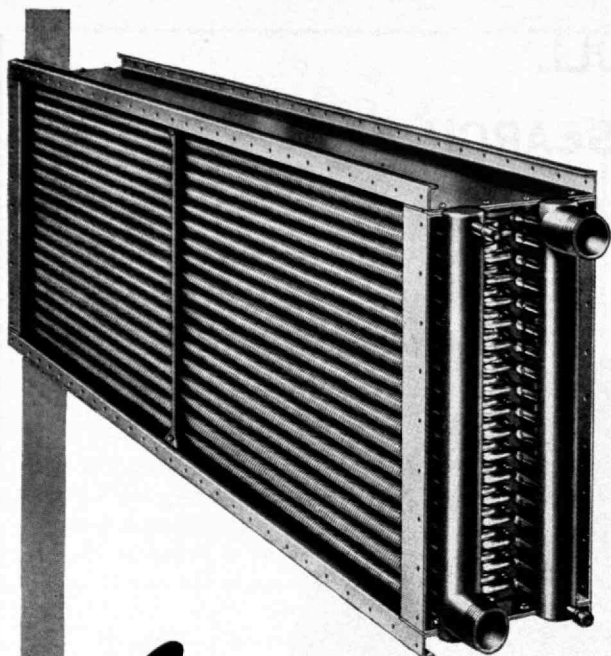
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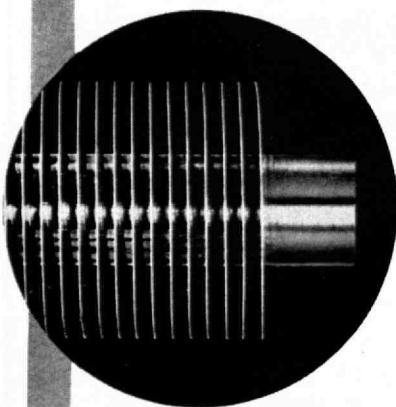
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THE TREND OF AFFAIRS

(Continued from page 54)

## Emphasis on Communication

Augustus B. Kinzel, '21, President of the National Academy of Engineering, announced recently that NAE has adopted an official seal, shown here. The emblem is meant to symbolize engineering "as a bridge between science and society, between the acquisition of new knowledge and its translation into new products and services to mankind," said Dr. Kinzel.

In keeping with the idea of communication and service, the NAE has joined with the National Academy of Sciences to form two new committees.

The first, the Committee on Scientific and Technical Communication, established at the request of the Na-



tional Science Foundation, will provide a focus for engineers and scientists to participate in plans for a national information system of science and technology. J.C.R. Licklider, former Professor of Electrical Engineering and Professor of Economics at M.I.T., is a member of the Committee.

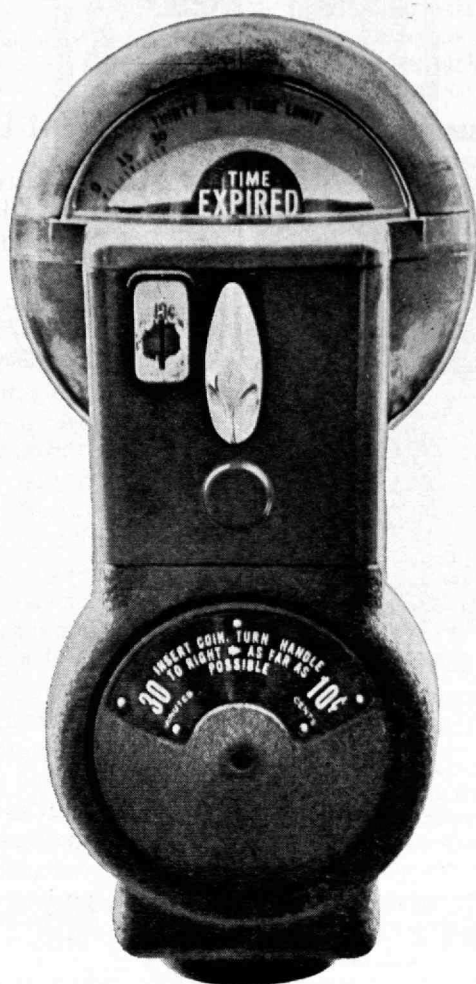
NAE and NAS have also established a Committee on the Scientific and Technologic Base of Puerto Rico's Economy, formed at the request of Governor Roberto S. Vilella of the Commonwealth of Puerto Rico. The committee, of which Raymond Stevens, '17, is a member, will assist Puerto Rico in adapting scientific and technological advances to its increasingly complex problems of economic development.

## Laser Effects on Microorganisms

Dr. C. O. Chichester, '49, Professor of Food Science and Technology at the Davis campus of the University of California, is studying how laser beams kill yeasts and bacteria, and how such microorganisms protect themselves against light. The work, supported in part by grants from the Public Health Service, U.S. Department of Health, Education, and Welfare, may help point the way to better methods for preserving foods.

The research has shown so far that continuous laser beams will kill bacteria in test tubes to which a photosensitizer has been added. Although it has been known for a long time that visible light can kill certain kinds of microorganisms, the researchers hope to discover how other microorganisms can protect themselves against light. The laser is valuable in these experiments because it speeds up processes which might occur normally with light from other sources.

(Continued on page 58)



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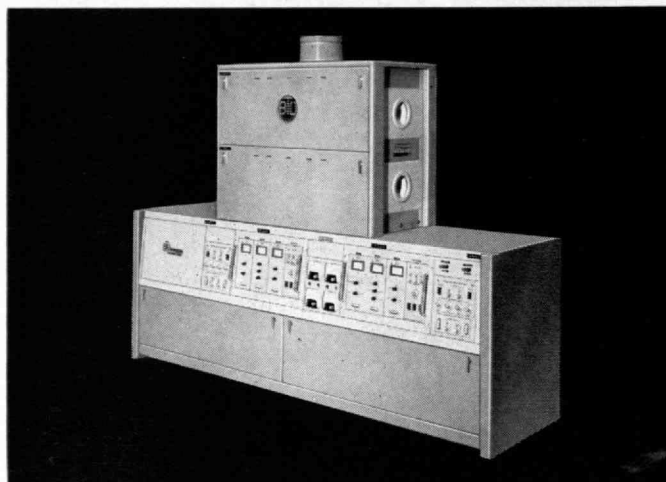


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THE TREND OF AFFAIRS

*(Continued from page 56)*

## Fluorescent Light from Supernovae

M.I.T. physicists Dr. Philip Morrison and Dr. Leo Sartori, '50, have advanced a new theory to explain the fading of light from cataclysmic stellar explosions called supernovae. The light from a supernova shines as brightly as a billion suns and lingers for up to two years, dimming gradually in a highly characteristic way.

A supernova event works somewhat as a fluorescent lamp, according to the theory published recently in *Physical Review Letters*. In the lamp tube, electric current passes through a gas, causing it to give up ultraviolet energy that is absorbed by fluorescent material on the inside surface of the tube; in turn this material gives up visible light.

In its pre-explosion period the supernova star would have been spewing out vast amounts of ionized gas into the interstellar space around it, forming a gas envelope progressively thinner with distance. As the expanding shell of light reverberates through the gas field, the ultraviolet energy is absorbed by the gas atoms; in turn, these atoms fluoresce, emitting visible light proportional to the amount of ultra-violet energy absorbed. Therefore, Drs. Morrison and Sartori suggest, the lingering light that observers see long after a supernova burst is actually re-radiated from the interstellar gas and does not come as primary light from the supernova explosion.

## Alumni Hear Dr. Stratton

At the March meeting of the M.I.T. Alumni Council, President Julius A. Stratton, '23, spoke on some of the major considerations affecting the future of M.I.T. He noted the problems of an urban and residential institution: the changing make-up of the M.I.T. community, particularly in the increase in the number of graduate students; the importance of the role of the undergraduates at the Institute; and the need for the Institute to continue to focus on its future objectives.

Parke D. Appel, '22, reporting for the Alumni Fund Board, told the Council that 11,748 alumni had contributed \$1,718,987 to the Alumni Fund as of March 25.

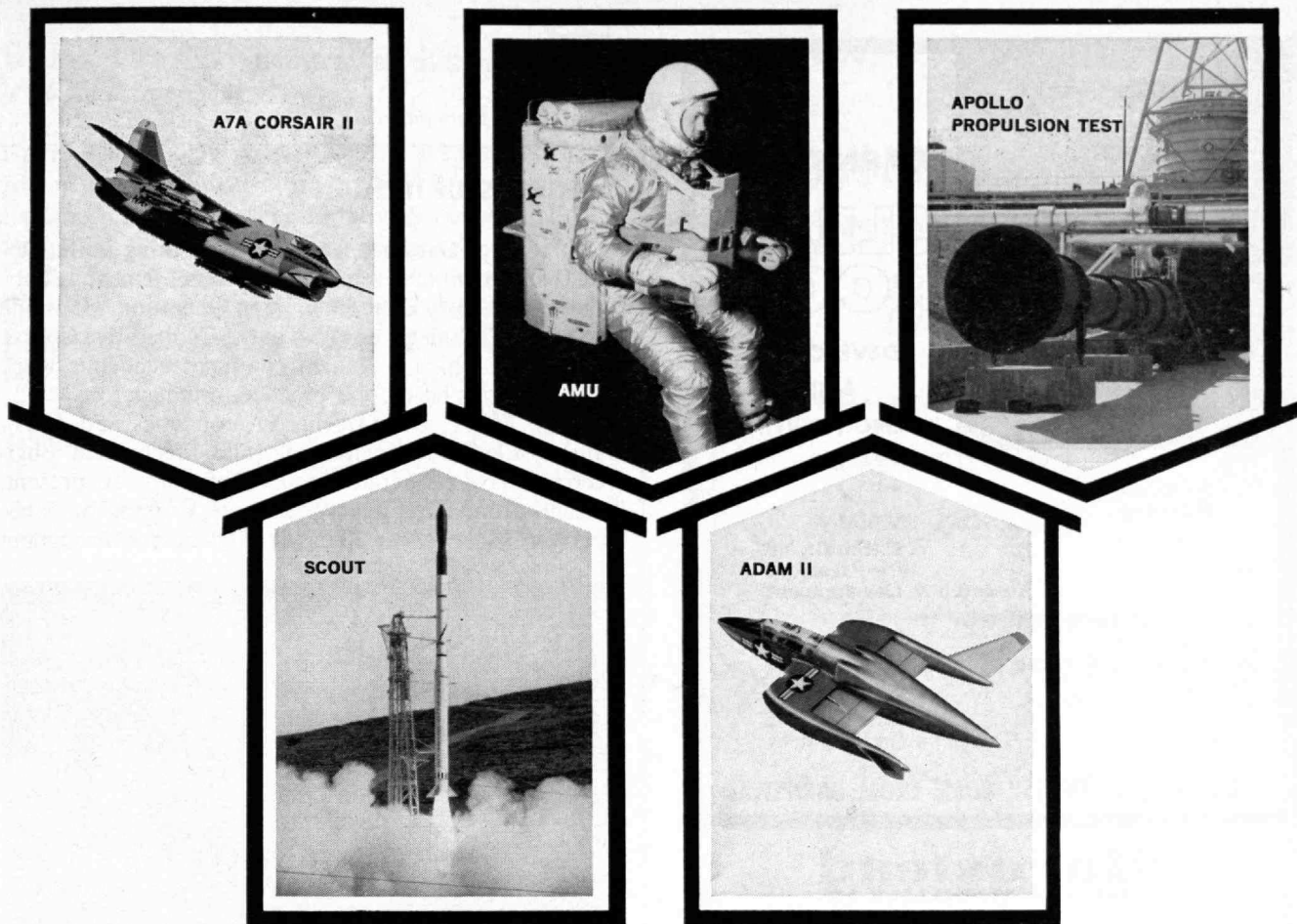
Members of the M.I.T. Club of Cleveland participated in the Council meeting by means of a special two-way telephone link.

## Athlete-Scholar Wins Award

The National Collegiate Athletic Association announced recently that a \$1000 scholarship has been awarded to John M. Mazola, '66, captain of M.I.T.'s 1965-66 basketball team. The award is an open one, allowing Mazola to pursue his post-graduate work at any school in the country. Majoring in electrical engineering, Mazola achieved a 4.5 cumulative average out of a possible 5.0 during his four years at M.I.T.

*(Concluded on page 60)*





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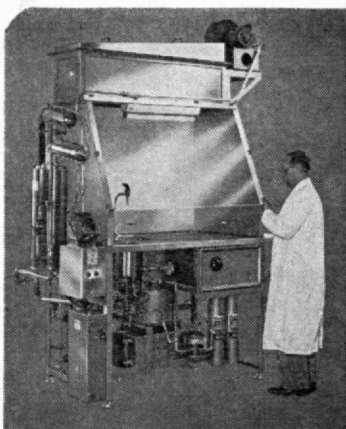
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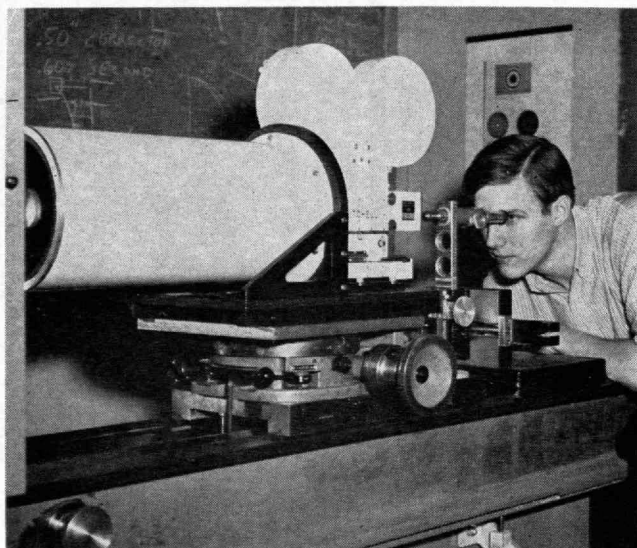
THE TREND OF AFFAIRS

(Concluded from page 58)

## Students of Industry

These days Gardiner Gay, '67, is working in the Optics Department of Avco Everett [Mass.] Research Laboratory's Reentry Experimentation Operation. He is one of 88 M.I.T. students enrolled in the Cooperative Course Program in which a student combines academic work at M.I.T. with on-the-job practice in industry.

Three M.I.T. Departments (Aeronautics and Astronautics, Electrical Engineering, and Mechanical Engineering) have cooperative courses of study. At present, students from these departments are working on a cooperative basis in over 30 industrial concerns throughout



the nation. In addition, the M.I.T. School of Chemical Engineering Practice operates a station for undergraduates and graduate students at the Bound Brook, New Jersey, plant of the American Cyanamid Company.

Typical of the experience that students gain in this program is the work that Mr. Gay is doing at Avco. There (see photo) he is lining up a special high-resolution, high-speed camera which will be placed aboard one of the laboratory's specially modified and instrumented aircraft used to record ICBM reentries.

## Kennedy Scholars

The first Kennedy Scholars to attend M.I.T. and Harvard University have been named in England by the Trustees of the Kennedy Memorial Fund. Public subscription established the scholarship fund as part of the British National Memorial to President Kennedy.

The ten Kennedy Scholars, seven men and three women, will arrive in Cambridge in September to spend the 1966-67 academic year.

The three Kennedy Scholars who will attend M.I.T. are Miss Caroline R. Elston, who will work in mathematics, John H. J. Allum who will study mechanical engineering, and Walter Greaves who expects to carry on research in electrical engineering.

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## RLE—The Beginning of an Idea

(Concluded from page 47)

istered with wisdom and a perceptive appreciation of the true nature of a university, and standards were set which have been carefully respected through the years. For all this RLE is most grateful to its sponsors.

The Research Laboratory of Electronics developed out of the mutual interests of Physics and Electrical Engineering but soon encompassed also the fields of biology, chemistry, mathematics, psychology, and linguistics. As Professor Slater made clear in his original memorandum, it was conceived as a voluntary association of faculty, students, and staff united by an interest in one aspect or another of a common set of problems. Each faculty member has maintained a dual affiliation—one with a department of the Institute, involving formal responsibilities for teaching, and the other, with RLE, where he carries on his research. No serious conflict of authority has arisen out of this arrangement. Academically the Laboratory is self-governing, with a steering committee of deans, department heads, and senior faculty. . . . The Director presides . . . not as a "director of research," but to represent the interests of RLE to the Institute Administration and to the several sponsors, as well as to assure the effectiveness and integrity of its operations.

We have here, therefore, not only a sharing of interests, but also a pooling of physical resources for research through shops, drafting facilities, and the special services of technicians. And finally, a plan of common funding has materially reduced the burden upon individual faculty members of a constant concern for grants and rewards. Much has been written of late on the methods of funding academic research. There are critics of the individual project procedure, and also strong defenders. For twenty years the Joint Services have entrusted to M.I.T. and thence to the principal officers of RLE the responsibility of administering the funds allotted under its contract. The ultimate justification for any block-grant plan rests upon the status of the institution and upon the quality and productivity of its faculty. Our own experience demonstrates how immensely advantageous this procedure can be!

The founding of the new electronics laboratory in 1946 represented a major new departure in the organization of academic research at M.I.T. and was destined to influence the development of interdepartmental centers at the Institute over the next two decades. These centers have been designed to supplement rather than to replace the traditional departmental structure. They take account of the fact that newly emerging fields of science commonly cut across the conventional disciplinary lines. And they afford a common meeting ground for science and engineering, for the pure and applied aspects of basic research, to the advantage of both. Perhaps more than any other development in recent years they have contributed to the special intellectual character and environment of M.I.T.

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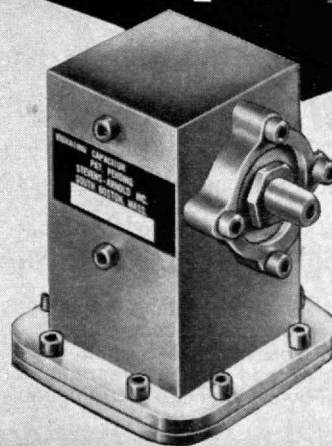
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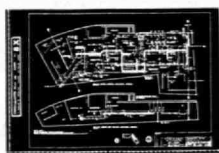
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## **African Socialism**

(Concluded from page 23)

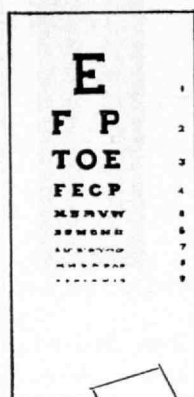
Japan before the turn of the twentieth century. Yet no manufacturer of textiles or electronic devices or a host of other items would today question the efficiency of Japanese industry. Perhaps, with the assistance of indigenous management, a similar integration of the modern and traditional can be effected in Africa.

There appears to be little basis in African tradition for labor unions. Landowners were also workers, and cooperative working arrangements meant that everyone served alternately as a worker and a manager. A laboring class, therefore, did not exist. Now, however, labor unions have arisen in response to the emergence of a wage economy, and it seems generally true that African leaders view them with suspicion. They tend to regard labor unions as irrelevant at best and incongruous on the African stage, on the theory that unions are a valid instrument only in a class struggle, which does not exist in Africa. This is, of course, a highly restricted view of the union's role. Moreover, whatever its validity in the context of relations between African entrepreneurs and workers, it does not philosophically preclude the union from being an essential force in defending the interests of labor in industries managed or owned by non-Africans. Actually, the antipathy between African socialists and union leaders appears to be based far more on practical political concerns about the existence of a nongovernmental power center, which could serve as a base for political opposition, than on philosophical grounds.

If African socialism can be carried to its logical conclusion, ultimately the only private sector will be an indigenous one, part of and sensitive to the traditional African society. By that time, if such a period will ever be reached, possibly new forms of industrial and commercial organization will have evolved, reconciling those African traditions which have been preserved to the needs of a modern economy. But Africa is at least decades away from this outcome, if only because it will take that long to develop the necessary manpower resources and to generate internally the required capital. And whether the normal conflicts between tradition and the monetary economy will ever be resolved remains one of the great riddles of the African experiment. In the meantime there is ample room in Africa for the international investor. Many expatriate enterprises can certainly be planned with confidence that sufficient control will be retained until a healthy return on capital has been earned and repatriated.

While harmonious operations will require some adjustment to the goals of African socialism, it should not be beyond the ingenuity of contemporary Western capitalism. And who knows whether we may discover in the process some answers to a few of our own unresolved dilemmas about the relationship between industry and human community in the machine age.

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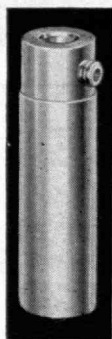
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## Science and Religion

(Concluded from page 41)

Finally, if science and religion are so broadly similar, and not arbitrarily limited in their domains, they should at some time clearly converge. I believe this confluence is inevitable. For they both represent man's efforts to understand his universe and must ultimately be dealing with the same substance. As we understand more in each realm, the two must grow together. Perhaps by the time this convergence occurs, science will have been through a number of revolutions as striking as those which have occurred in the last century, and taken on a character not readily recognizable by scientists of today. Perhaps our religious understanding will have seen progress and change. But converge they must, and through this should come new strength for both.

In the meantime, every today, with only tentative understanding and in the face of uncertainty and change, how can we live gloriously and act decisively? It is this problem, I suspect, which has so often tempted man to insist that he has final and ultimate truth locked in some particular phraseology or symbolism, even when the phraseology may mean a hundred different things to a hundred different people. How well we can commit our lives, effort, and devotion to ideas which we recognize in principle as only tentative represents a real test of mind and emotions.

Galileo espoused the cause of Copernicus' theory of the solar system, and at great personal cost because of the Church's opposition. We know today that the question on which Galileo took his stand, the correctness of the idea that the earth rotates around the sun rather than the sun around the earth, is largely an unnecessary question. The two descriptions are equivalent, according to general relativity, although the first is simpler. And yet we honor Galileo for his pioneering courage and determination in deciding what he really thought was right and speaking out. This was important to his own integrity and to the development of the scientific and religious views of the time, out of which has grown our present better understanding of the problems he faced.

The authority of religion seemed more crucial in Galileo's Italy than it usually does today, and science more fresh and simple. We tend to think of ourselves as now more sophisticated, and science and religion as both more complicated so that our position can be less clear cut. Yet if we accept the assumption of either one, that truth exists, surely each of us should undertake the same kind of task as did Galileo, or long before him, Gautama. For ourselves and for mankind, we must use our best wisdom and instincts, the evidence of history and wisdom of the ages, the experience and revelations of our friends, saints, and heroes in order to get as close as possible to truth and meaning. Furthermore, we must be willing to live and act on our conclusions.



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Recent publications especially likely to interest M.I.T. Alumni include:

*Human Learning*, by Edward Thorndike (The M.I.T. Press, Paperback, \$1.50). This collection of essays marks the beginning of the practical implementation of Thorndike's theories to developmental psychology.

*The History, Theory and Criticism of Architecture*, edited by Marcus Whiffen (The M.I.T. Press, \$3.95). Papers from the 1964 AIA-ACSA Teacher Seminar.

*A Prophet In Two Countries, The Life of F. E. Simon*, by Nancy Arms (Pergamon Press, Paperback, \$2.45). Sir Francis Simon was a scientist of international eminence and his reputation embraced work in low temperature physics, atomic energy and technological education.

*A Theory of Natural Philosophy*, by Roger Joseph Boscovich (The M.I.T. Press, Paperback, \$2.45). In this work, Boscovich, in the first scientific generation after Newton, developed a speculative molecular theory of matter.

*Bacterial Metabolism*, by Marjory Stephenson (The M.I.T. Press, Paperback, \$2.95). The first publication of this book marked the formal institution of the study of the biochemistry of bacteria as individual, isolated organisms.

*The Chemistry of Diamond-like Semiconductors*, by N. A. Goryunova, edited by J. C. Anderson (The M.I.T. Press, \$10). This book covers recent experimental data and new general and theoretical aspects of the subject.

*Galactic Structure*, edited by Adriaan Blaauw and Maarten Schmidt (The University of Chicago Press, \$15). Leading investigators in the fields of galactic structure and dynamics describe the present status of galactic research.

*Progress in Aeronautical Sciences, Volume 6*, by D. Kuchemann and L. H. G. Sterne (Pergamon Press, \$20). The sixth volume in a series of review articles designed to give the specialist reader a concise and orderly survey of recent work in the many aspects of the aeronautical sciences.

*An Introduction to the Longitudinal Static Stability of Low-Speed Aircraft*, by F. G. Irving (Pergamon Press, \$4.50). The author deals with specifically conventional rigid airplanes traveling at speeds which are such that compressibility effects are negligible.

*The Language of Life*, by George and Muriel Beadle (Doubleday & Company, Inc., \$5.95). A primer for laymen on the science of genetics.

*Computer Typesetting, Experiments and Prospects*, by Michael P. Barnett (The M.I.T. Press, \$10). The

experiments were conducted at the Cooperative Computing Laboratory at M.I.T. when the author was Director of the Laboratory and Associate Professor of Physics at the Institute.

*Genetic Polymorphism*, by Edmund B. Ford (The M.I.T. Press, \$4.75).

*The Use of Mathematics in Economics*, Russian edition edited by V. S. Nemchinov, English edition by A. Nove (The M.I.T. Press, \$12.50).

*On-Line Computation and Simulation: The OPS-3 System*, by Martin Greenberger, Malcolm M. Jones, '57, James H. Morris, Jr., and David N. Ness, '61 (The M.I.T. Press, Paperback, \$4.95). The authors are all associated with the Sloan School of Management at M.I.T., and they developed OPS-3 using the compatible time-sharing system at M.I.T.'s Project MAC in a group led by Professor Greenberger.

*Experience and Conceptual Activity*, by J. M. Burgers (The M.I.T. Press, \$7.50).

*Advances in Earth Science*, edited by Patrick M. Hurley, '40, Professor of Geology at M.I.T. (The M.I.T. Press, \$20). Articles by Edward N. Lorenz, '43, Professor of Meteorology, and Henry M. Stommel, Professor of Oceanography at M.I.T., appear in this volume of contributions to the International Conference on the Earth Sciences held at M.I.T. in September, 1964. The book is dedicated to Cecil H. Green, '23.

*Industrial Management in the Atomic Age*, by V. Lawrence Parsegian, '33 (Addison-Wesley, \$10.75). Dr. Parsegian holds the distinguished Chair of Rensselaer Professor at Rensselaer Polytechnic Institute.

*Advances in Machine Tool Design and Research*, edited by S. A. Tobias and F. Koenigsberger (Pergamon Press, \$30). This volume is a record of the proceedings of the Fifth International Machine Tool Design and Research Conference held in 1964 at the University of Birmingham in England.

*Physics of Quantum Electronics: Conference Proceedings*, edited by Paul L. Kelley, '62, Benjamin Lax, '49, and Peter E. Tannenwald (McGraw-Hill Book Company, \$24). The editors of this reference work are at M.I.T.

*Students, Scholars, and Parents*, by Stephen White (Doubleday, \$3.95). Mr. White, a prominent educational journalist, has written an exploration of the ideas behind the new math and other curriculum reform.

*Sloops and Shallops*, by William Avery Baker, '34 (Barre Publishers, \$7.50). Mr. Baker is director of the Hart Nautical Museum at M.I.T.

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## RLE—Why the Military?

(Concluded from page 49)

both the study and the laboratory phases. The reasons for M.I.T.'s counter-proposals were two-fold. In order to gain time and to acquaint a wide variety of scientific and technical people with the needs in this field, and hence to aid in recruiting for the laboratory, it was felt that the study was necessary. And in addition, although no one quarreled with the ADSEC conclusions, it was felt that they needed broadening before the laboratory phase was embarked upon. Army and Navy participation was requested because of the broad scope of the continental defense problem and because the Army and Navy had assigned, though subsidiary, roles to play. It is interesting to note that this modification of the Air Force proposal was accepted and, for the sake of expediency, the contract for Project Charles was held by the Signal Corps, using the same contractual procedures as were being used for RLE. Later, of course, the Lincoln Laboratory was established as the result of the ADSEC findings, aided and abetted by the Charles study.

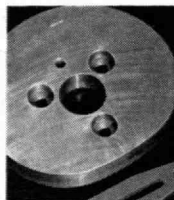
Meanwhile the Korean War had begun in June of 1950, and shortly thereafter, while Hartwell was still meeting and before the air defense project was started at M.I.T., the three Service sponsors of RLE asked that the Laboratory's program be enlarged because of the

Korean situation. By agreement between M.I.T. and the three Services, the RLE program was essentially doubled in the fall of 1950 to include three projects of current military interest: for the Air Force, the development of hardware for electronic ground environment for air defense; for the Navy, better means of presentation of radar and sonar data; and for the Army, better communication systems for both combat areas and the zone of the interior.

Hence when the Charles study began in February of 1951, and before the formal establishment of the Lincoln Laboratory in August of 1951, a going concern for military problems of importance to continental air defense had been established at RLE. Again in the spring of 1951 M.I.T. requested and the Services agreed to combine the applied group of RLE with the soon-to-be Lincoln Laboratory. This group from RLE became the Communications and Components Division of Lincoln Laboratory, and, along with a group from AFCRC [Air Force Cambridge Research Center] working on digital data transmission methods and the M.I.T. Whirlwind Computer Laboratory, formed the nucleus of Lincoln Laboratory's hardware program.

We have seen, in the six-year period from August 1945 to August 1951, a new academic, peacetime laboratory start from the defunct war-time Radiation Laboratory, and in turn enable a new applied military laboratory to get off to a running start. From this, all kinds of conclusions can be drawn concerning six-year cycles, military expediency and the beauties of the ad hoc study. I firmly believe, however, that the only verifiable conclusion is that military support of university research can be extraordinarily fruitful for both parties. Certainly there are dangers, but care and mutual respect can obviate most of them. Personally, I feel that basic research can profit from an association with the applied or programmatic research—an association which should be close, but must not be smothering.

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## RLE—Those Early Days

(Concluded from page 45)

speaker would often still be trying to finish his outline when the group gave up at midnight. There were often violent arguments, many of which would seem naive today. For example, the question of the analogy between the digital computer and brain function was debated almost endlessly.

These seminars served the purpose Wiener had in mind, possibly better than he had ever dreamed they would. They certainly resulted in bonds of friendship and professional associations that have lasted until today. Research activities were born in these sessions, too, and the family trees of many current research projects have their roots in these gatherings.

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## **F**EEDBACK

### On Joseph Keenan

Sir:

Your retirement summary of the work of Joseph H. Keenan in [the February] REVIEW, almost seems as if the editors had purposely chosen to comment only on the appendices to Keenan's work and ignore the body of his contributions.

For 25 years now, since the publication of his text, *Thermodynamics*, in 1941, Joseph Keenan has been generally acknowledged as the leading figure in engineering thermodynamics in the western world. Moreover, this status is and has been entirely justified by the facts. Keenan's 1941 text is one of those landmark works that shifts the major trend of a subject onto a firmer foundation and higher and more useful ground. Before Keenan, engineering courses were mostly "Heat-Power," a collection of a bag of tricks on how to design steam engines, and as time went on, steam turbines, IC engines, refrigerators and so on. After Keenan, modern engineering thermodynamics as an

engineering science is available for all to read.

These remarks may sound a bit extravagant, but they are in the large sense true. For some years now I have been a consulting editor for the world's largest corporate publisher of technical books, and I have seen nearly all the works in this field, published and unpublished. I can assure you that nearly all the successful texts in English are lineal descendents of Keenan's 1941 edition. The two most widely used texts in the United States (Van Wylen, Mooney) were both written by men who worked for Keenan and taught sections at Tech; other leading books here and in Great Britain are also clearly based on Keenan's work and modeled on his text.

Nor did Keenan's work stop with the 1941 edition. Further changes are coming into the subject, as must be expected, and Keenan has remained in the forefront of these advances . . .

Nor are Keenan's contributions limited to the technical side. He has over the years been the friend and confidant of able workers, peers and students alike. He has systematically followed the careers of his better students, and has unfailingly provided sound professional counsel and encouragement.

Space limitations preclude a detailed listing and explanation of the central importance of the many contributions of Joseph Keenan to his subject. The greatest bulk of them deal with matters like straightening out the logic of the fundamentals, providing better definitions for the central concepts, extending basic derivations to provide more general and more rigorous tools for analysis of classes of systems which are particularly important to engineers; many are also original research contributions.

Keenan's life work is not two tables of properties as suggested by TECH REVIEW but it is the advancement of engineering thermodynamics over its full range; its foundations, its exposition and teaching, its frontier areas, and its applications. More important, he has succeeded at this task beyond any other individual of his time. . . .

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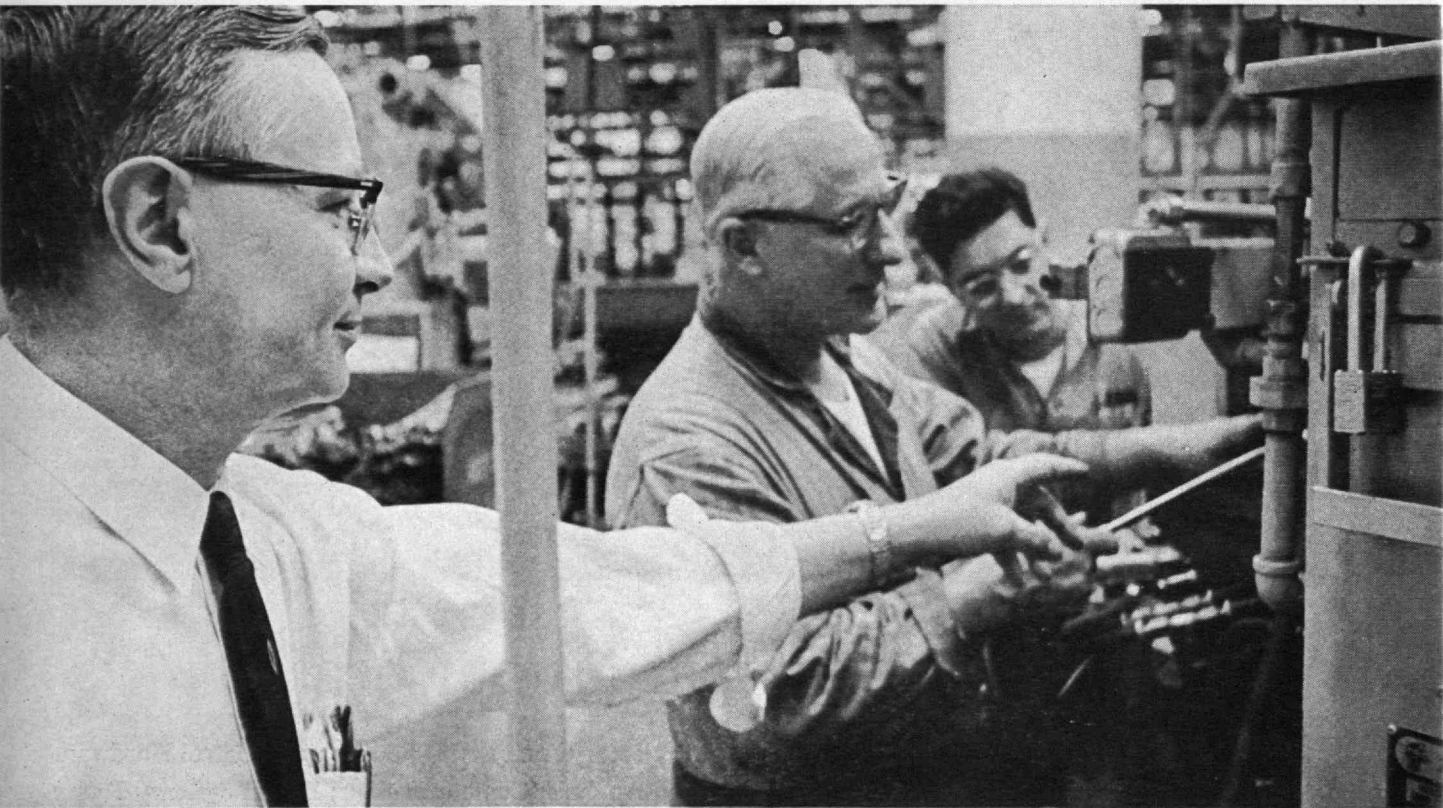
Trajectory Analysis; Guidance and Control Hardware and Analysis; Communications; Digital Systems; Radar and Sonar Systems; Electronic Packaging; Microelectronics; Electromagnetic Interference; Systems Integration; Experiment/Spacecraft Design Integration; Mechanical Integration and Test. Why not write us. TRW Professional Placement, One Space Park, Dept. J-5, Redondo Beach, California. TRW Systems is an operating group of TRW Inc., a diversified manufacturer of automotive, electronics and aerospace systems and components.

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**TRW** SYSTEMS



## The boy who wondered what made things tick... now keeps complex machines 'ticking' at General Motors



When Steve Slowinski was eight years old, he was lucky enough to find a broken-down alarm clock in a vacant lot near his home. He took the clock apart, and then put it back together so it worked perfectly.

In the days and years that followed, Steve considered it a personal challenge when he found anything that needed rebuilding. In high school, for

example, he set up his own repair business and within a year his room was crowded with faceless clocks, dismembered watches, washing machines, toasters and other items. You name it — Steve could fix it.

After courses in mechanical arts and drafting, Steve joined the Ternstedt Division of General Motors. His first job—to fix intricate machinery when it

got fouled up. Today, Steve is the Foreman of the machine repair team at this important GM Division.

Looking back, it was more than a broken alarm clock that a young boy found so many years ago. It was, in effect, a lifetime career.

We're mighty glad it worked out that way... for Steve Slowinski... and for General Motors!



**General Motors is People...** making better things for you



# on Post **EXTRA**

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## REAT SEAL OF TECH RESTS IN NEW HOME

Striking Night Spectacle as Archives of the Institute Are  
Carried Across the Charles—Graduates, Young and Old,  
Have a Merry Day of "Stunts" at Nantasket Beach



STRIKING FEATURE OF THE TECH PAGEANT, LAST NIGHT. Picture shows the huge gold chest, repository of the institute's charter and valuable archives, being borne to the Tech ship Bucentaur for transfer across the Charles River. Photo by Huntington and Walton. Post Staff Photo.

## RYAN WILL BACK WILSON

Statement on Eve of Convention  
Assures Full Harmony in the  
Democratic Sessions

ROBERT L. NORTON  
COUNCILMAN, June 13.—Colonel  
Norton, made here today,  
proposes to support President  
and the platform adopted by

## SHACKLETON TO GO BACK

Will Attempt Rescue in  
Antarctic in Uruguay Ship

LONDON, June 13.—The admiralty an-  
nounces that the government be-  
lieves that the expedition led by  
Lieutenant Sir Ernest Shackleton  
returns from the Antarctic had decided  
to equip the ship Thetis for a two-  
year search of the Weddell Sea, but  
that this is now unnecessary.  
"Lieutenant Shackleton will under-  
take," says the admiralty statement,  
"the rescue of the men left on Kin-  
shannon Island in a vessel previously  
shared at his disposal by Treasury."  
While the rescue of the men left at  
Kinshannon was the main object of  
the expedition, the men left at  
Pape Evans when the Aurora was  
blown away will be carried out at the  
end of the year in the Aurora with the  
co-operation of the Argentine gov-  
ernment.  
The nearest institutions, provided  
by the Argentine government, left

BY ROY ATKINSON  
While great bombs burst on high,  
illuminating river and land for miles  
around, the archives of the Massachu-  
setts Institute of Technology were  
transported in solemn state on the  
classic barge Bucentaur to the new  
buildings of the Institute last night.  
As the ancient Venetians went to  
the wedding of the waters of the  
Adriatic yearly in their barge of  
state, so went the officers and alumni  
of Technology to their new home.  
Continued on Page 18—First Col.

**HIGH TIME FOR**  
A. M. 10:00 P. M. 9:00  
SUN rises 4:07 MOON sets 7:12  
See also tomorrow's column, page 10.  
Light all vehicles tonight at 7:00.  
TODAY'S ANNIVERSARIES, ETC.

1916-1966

Come celebrate 50 years  
in Cambridge at M.I.T.  
Alumni Day on June 13

- Seminars on new developments in management.
- Exhibits—new ways of learning about new fields of technology.
- Special alumni memorial service in the Chapel.
- M.I.T. Freshman Seminars on the Kresge Auditorium stage: how to use a computer instead of a slide rule, the history and problems of Boston, and new uses for stroboscopic light.
- Traditional reunions at lunch in the Great Court, reception on the mall, banquet in Rockwell Cage.
- An evening of entertainment (dancing, too) with the Glenn Miller Orchestra, Bob and Ray, and the Pandoras.

For full details, clip and mail this coupon to the  
Alumni Association, Room E19-430, Massachusetts  
Institute of Technology, Cambridge, Massachusetts  
02139.

Please send me the Alumni Day announcement and reser-  
vation forms.

Name \_\_\_\_\_ Class \_\_\_\_\_

Address \_\_\_\_\_

If you want to attend a special management seminar on  
the morning of Alumni Day, please mark topics of interest  
from the following list:

- ☐ Computer-aided policy management
- ☐ The N.L.R.B., the courts, and labor-management re-  
lations.
- ☐ Management information-decision systems
- ☐ Production and marketing: some typical restraints
- ☐ Organization and management of science and technol-  
ogy
- ☐ Information systems for planning and control



# **I** NSTITUTE YESTERYEARS

## 25 Years Ago

The appointment of Sverre Pettersen as Head of the new Department of Meteorology to be established in 1941-1942 was announced in *The Review*. "Dr. Pettersen, who, since 1939, has been Acting Head of the Course in Meteorology, will succeed Professor Carl-G. A. Rossby, who has been on an extended leave of absence as assistant chief of the United States Weather Bureau. . . ."

■ Faculty promotions to the grade of professor, effective for 1941-1942, were also announced in *The Review*, as follows:

Harold C. Weber, '18, Hoyt C. Hottel, '24, and Thomas K. Sherwood, '24, of the Department of Chemical Engineering; Ernest H. Huntress, '20, of the Department of Chemistry; and Julius A. Stratton, '23, of the Department of Physics.

■ The Institute mourned the passing of Professor Robert E. Rogers—the universally known "Tubby" Rogers—of the Department of English and History, on May 13. Graduated from Harvard in 1909, he came to the Institute as instructor in 1913, and was successively promoted to assistant professor in 1917, to associate professor in 1923, and to professor in 1934. He was the 5th Editor of *The Review* from 1917 to 1922.

## 75 Years Ago

"Warm weather was never meant as a cure for weary brains," declared the Lounger in one of the May, 1891 issues of *The Tech*, "yet the warmest weather of the academic year, coupled with the hardest work, must now be endured by our most weary minds, until about the first of June, when we may hope to leave our business and take a rest. Surely this is a rather doleful time of the year. Everyone grinds harder every day. Every day increases the length and decreases the width of the faces of our worthy contemporaries. Lastly, all our worthy

contemporaries, day by day, linger less and less on the steps and in the hallways of our more or less beloved buildings.

"It is indeed a sad thing to think how much of this work is to prove itself so unnecessary. Do not imagine, however, that there is here any insinuation of FF's. No, of course; all that was meant was merely a little sermon. As is often the case with sermons, the deed is condemned after it has been executed and cannot be undone."

Thus, continued the Lounger, "It has been impossible for him to feel funny this week, and doubtless his effusions lack their characteristic humor in consequence. At this season all the springs of joy are dried up in him as the examinations approach."

■ And in the second of *The Tech's* May, 1891, issues, the Lounger contributed further thoughts on the "terrible ordeal that is so rapidly approaching, and which is incident to the late spring or early summer—the annual exams. Upon the results of a few days depends our lifelong happiness or our eternity of despair and regret.

"It gives the Lounger a cold shiver to think of it, and that he may not be here next year to carry on this one-sided conversation once a fortnight, or that he may necessarily have to be such a 'grind' as to be unable to do so.

"But let us not dwell longer on this doleful subject. Let us look at the good things spring brings us, or is soon to bring us. First, rest, and utter forgetfulness of the terrible feline serenades so many of us have been involuntary listeners to, almost every night, during the last few weeks. Second, the pleasant anticipation of returning home to relatives, friends, sisters, and other fellows' sisters. And third, no more eating of hash and darning of stockings. Buttons will again be discovered and used, and the Lounger can smoke his pipe and read his paper without a care for the morrow.

"Thus endeth the chapter on spring."

## 100 Years Ago

At the 50th Meeting of the 'Government,' held May 28, 1866, it was "Voted, that a Committee be appointed to consider and report what sum should be fixed upon, to be given for the benefit of the School, in order to entitle the Donor to name someone as a Pupil for the four years' Course of Instruction."

— The following Officers of 1865-1866 were reelected for 1866-1867: William Barton Rogers, as President; John A. Lowell, Jacob Bigelow, Marshall P. Wilder, and Morrill Wyman, as Vice-presidents; and Thomas H. Webb, as Secretary. Charles H. Dalton, the Institute's first Treasurer, declined reelection, and William Endicott was chosen to be the second Treasurer.†

■ Extract from the first M.I.T. Catalogue, dated 1865-1866:

"The examinations for degrees will be held in the month of May, and will be partly oral and partly in writing. In both, the questions will range over the entire series of studies on which the student is required to be prepared.

"As part of these examinations, the candidates will be called upon to exhibit the drawings and projects prepared by them for the occasion, and to perform such laboratory manipulations and exercises as the Faculty may assign.

"At the same time, the theses of the candidates will be presented for examination; and, where expedient, their authors will be called upon to explain or defend them."

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†Mr. Webb died during the summer of 1866, and Samuel Kneeland was elected as the Institute's second Secretary, in which office he served until 1878. Messrs. Dalton and Endicott continued as members of the 'Government'—the title of which was changed to the 'Corporation' in 1870—until 1879 and 1914, respectively.

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*As recalled for Review readers by the late H. E. Lobdell, '17.*

## Class News



# '92

Mrs. **Francis H. (Alice Beckler) Pough**, who was 96 years old on April 21, graduated from M.I.T. with a degree in Public Health and taught at Philadelphia Normal School until her marriage to Francis H. Pough, who also attended M.I.T. Among her four children is Richard H. Pough, Class of '26, Course XV. He has had a distinguished career in the field of conservation inspired by her instruction in natural history. Another son, Dr. Frederick H. Pough, is widely known as an authority in mineralogy, gems, and volcanoes. He is currently director of the Santa Barbara Museum of Natural History. Mrs. Pough's sister, Edith Beckler, M.I.T. '02, was state bacteriologist for the State of Massachusetts until her retirement a few years ago. Mrs. Pough is well and lives in a hotel near her daughter who is children's librarian in the Salt Lake City Library system.

# '95

Now that our former President, **Alfred P. Sloan, Jr.**, passed through the Golden Gates on February 17th and left us all behind, we voted to have as President of our class of 1895 Professor **Charles W. Berry** of 1088 Massachusetts Ave., Lexington, Mass.—**Andrew D. Fuller**, Secretary, 1284 Beacon St., Brookline, Mass.

# '96

When we were graduated 70 years ago **Charles Hyde** was class president. He is probably still president as a holdover; unless he rules otherwise there will be no class reunion this June. Five years ago Bakenhus offered the New York Yacht Club for a reunion; the offer was not accepted because the limited response to the suggested meeting was that many of us were not able to attend. So this year Davis and Driscoll, regular attendants to the Alumni Luncheon, will be glad to welcome any of the 20 other classmates at the luncheon.

The March Review notes that **Walter Leland** is still one of the youngest in the class, was ninety on March 13.—**James M. Driscoll**, Secretary, 129 Walnut Street, Brookline, Mass.

# '97

Regarding news of '97, this is very limited as no word has come from any member as to my question of a month or more

ago, as to the disposition of the Class Fund by adding it to the fund for Gus Lamb's widow. Silence being taken as assent, I am assuming that my suggestion is accepted and the matter is closed. . . . A somewhat obscure notice has come from the Alumni Association announcing the death of **Charles A. Bolles** of Ewing, Ind., Course VI. No date is given. He apparently did not graduate and was unknown to me. If any of the class can give me an outline of his career it will be appreciated.—**George R. Wadleigh**, Acting Secretary, 70 Flower Avenue, Hastings-on-Hudson, N.Y.

# '99

**Avery Robinson** was born January 21, 1878, in Louisville, Ky. His training was in private schools, and under the tutelage of Abraham Flexner; at 17 he went to M.I.T. He also studied violin under Henry Burcke, a pupil of Yaaye, and with Karl Schmidt, in Louisville. He studied composition in London with Norman O'Neill during the years of 1921-1931. In World War I he served with the third Division in France as A.D.C. to General Harry S. Bishop, as Captain of Field Artillery. During World War II he organized and was chief observer of Columbia County Aircraft Warning System. Honors: Member of the Society of the Cincinnati; eight years on the Honorable Committee of Management of the Royal Philharmonic Society of London, as Treasurer, and was presented to King George V and Queen Mary, in recognition of his services. Compositions: 15 song and instrumental pieces including "Water Boy," "Fir Needles," "Gwine Away," "Swing Low," and various orchestral works. In 1932 he was associated with A. Iselin and Company in New York City for some years, and thereafter as Vice-president of his wife's perfume business, Mary Chess, Inc. Since 1952 he and his wife, (late) Mary Grace Chess, also of Louisville, Ky., had been living permanently at Second Family House, New Lebanon, N.Y., where he died as the result of a broken hip, May 11, 1965.—**Percy W. Witherell**, Secretary, 1162 West St., Wrentham, Mass.

# '01

After I had sent the class notes for last month, I received word of the death of **Bob Derby** at his home in Williamstown, Mass., on February 14. He was 86 years old. He was a retired chemist and a widely known conservationist. He was a native of Williamstown. He graduated from

## Happy Birthday

In May one alumnus will reach the age of 90; nine alumni will celebrate their 85th birthday, and 10 will become 80 years old.

May, 1876—**Henry M. Brock**, '00, on the 8th.

May, 1881—**GILMAN B. JOSLIN**, '05, on the 3rd; **EDWIN G. KINTNER**, '08, on the 5th; **FRANK E. MOTT**, '08, on the 9th; **FREDERIC MENNER**, '07, on the 11th; **WILLIAM R. GREELEY**, '02, on the 12th; **JASPER E. CRANE**, '04, on the 17th; **GEORGE R. WALWORTH**, '04, on the 22nd; **HARRY WIGGIN**, '05, on the 27th; **MISS REBECCA DODD**, '06, on the 31st.

May, 1886—**H. LESTON CARTER**, '08, and **LLOYD A. PATRICK**, '11, on the 1st; **KARL R. KENNISON**, '08, on the 6th; **ARTHUR E. HARTWELL**, '09, **EARLY C. KILMAN**, '12, and **JULIUS H. SERRA**, '09, on the 15th; **PHILIP H. CHASE**, '09, and **HENRY H. MARSHALL**, '09, on the 18th; **FERDINAND J. FRIEDMAN**, '08, on the 19th; **ROBERT S. MINOT**, '09, on the 24th.

M.I.T. in 1901. While there he received an intercollegiate medal for competitive walking. He attended some of our reunions at Endicott House. He was chairman of Berkshire Dutch Elm Control Committee and had served the state on a committee formed by the Department of Natural Resources to review proposed legislation on insect pest control. He was former president of the local Taxpayers Association. In his later years he traveled a great deal and showed the men at the reunion some of his pictures. . . . I have no further word from Mrs. Peterson.—**Theodore H. Taft**, Secretary, P. O. Box 124, Jaffrey, N.H. 03452

# '03

The luncheon at the Chemists' Club at 52 East 41st St., New York, still holds interest among the oldest members. On February 7 **Clarence M. Joyce**, V, noted that **George R. Wadleigh**, '97, and Mrs. Wadleigh heightened the friendliness of the occasion by his personal memories of the dramatic changes with modern research throughout the entire chemistry profession. We also congratulate Clarence on his recent marriage to Mrs. Mildred Lever, who may now become his personal secretary, being formerly secretary of the Montclair, N.J. Unitarian Church. Their new address is 31 The Crescent, Montclair, N.J.

M.I.T. has started construction of a 30-story, high rise apartment building, cost \$4,000,000, in the Kendall Square section. The tower, to be known as Eastgate, will provide 216 efficiency, one- and two-bedroom apartments for M.I.T. married students and faculty. The building site is on Wadsworth Street, just south of the traffic rotary and at the east end of the M.I.T. campus. Foundation work is already underway and final completion of the tower is expected by late summer, 1967. The building is financed under a



self-liquidating loan from the Community Facilities Administration of the Federal Housing and Home Finance Agency and by an anonymous gift to the Institute. The residence tower will provide M.I.T. with urgently needed additional housing facilities for married students on the campus. By incorporating some facilities for faculty members and their families, the Institute hopes to enlarge opportunities for close interaction between teachers and students. M.I.T.'s only other on-campus facility for married students is the 210-unit Westgate development, at the opposite end of the campus overlooking the Charles River. The new tower will be architecturally integrated with the Alfred P. Sloan Building at 50 Memorial Drive and the recently completed Grover M. Hermann Building. The three buildings will form a complex to be designated as the Sloan Campus. Overall height of the residence Tower will be 265 feet. Three-quarters of the Eastgate apartments will be occupied by married students and the balance by faculty members. The building will include rooftop lounge areas, both enclosed and open air. Laundry rooms also will be on the top floor. The ground floor will contain reception and conference space, an enclosed play area for children and room for a nursery school. The building itself will be of cast-in-place exposed architectural concrete complementing the Sloan and Hermann buildings. It will be 76 feet on each side, with a raised plaza around the base continuous with a plaza around the Hermann Building. Underground parking facilities for 50 autos will be provided beneath the plaza as well as outdoor parking facilities. Additional underground facilities already are available under the Hermann Building plaza. Architects are Professor Eduardo Catalano of the M.I.T. Department of Architecture and Crawley Cooper, Robert Brannen and Paul Shimamoto, Cambridge architects. This same group served as architects for the Hermann building.

Our classmates report they have enjoyed the recent graphic yet long delayed accounts of our members, during their former busy but now retired careers. Let us not delay until our obituary notices arrive. There is yet ample time to fulfill this void by copious personal incidents, otherwise lacking and added esprit decor to our fireside chat. . . . Our birthday greetings go to **Louis B. Rapp, III**, of Gainesville, Fla., on February 1, and **Daniel A. Smith, VI**, on March 27 for their 85th milestone. . . . **Charles S. Glenn, VI**, has a new address: 195 Prince George Street, Annapolis, Md.; **Arthur B. Allen, II**, now resides at 1745 Coit Ave., East Cleveland, Ohio.—**John J. A. Nolan**, Secretary, 13 Linden Ave., Somerville, Mass.; **Augustus H. Eustis**, Treasurer, 131 State St., Boston, Mass.

# '04

Until some of our classmates return from their winter vacations in the south, Bahamas, Virgin Islands, etc. we are going to be a little scarce on news. Person-

ally I have been laid up as a result of an accident and have not been able to circulate much; however, I am sure we will all be back to our regular routine soon and I hope to receive some news from you. . . . The Alumni office has given us some changes of addresses as follows: **Ralph O. Ingram** to Colonial Nursing Home, Child St., Warren, R.I.; **Henry L. Lyman**, 1410 Whittier St., N.W. Washington, D.C. 20012; **George R. Spalding** to 35 Meadow Lane, New Canaan, Conn. 06840; and **William B. Boggs**, to 124 Mincola Road West, Port Credit, Ontario, Canada.—**Eugene H. Russell Jr.**, 82 Stevens Road, Needham, Mass.

# '05

When a class secretary sits down to write the class notes and hasn't heard from any of his classmates for a month, he either lets it go by default and disappoints those who say, "I always look for the class notes first," or he improvises. The easiest thing to improvise is on the matter of statistics. Not so unusual because the letters I get and the questions asked at reunions are mostly about statistics. So here goes, and if you don't like it, give me something better to write about. 14 men remain who took Course II, 11 from Course I, 12 from Course VI, nine Course III, eight Course XIII, four each from Courses IV and V, two from Course X and one Course VIII. There are still three bachelors (I mean unmarried). Remember? 12 men are still active in business, meaning that they go to their office regularly, mostly part time, which means self-employed. 34 are living with their wives, and at this stage of the game this does not permit any wisecracks. There are 17 widowers; three of our fellows are unfortunately living in nursing homes. 39 live in Massachusetts, six each in California and Florida, seven in New Jersey, five each in New York and Connecticut, four each in Ohio and Pennsylvania, three each in Michigan, Washington and Texas, two each in Maryland and Arizona, one each in Georgia, Illinois, Indiana, Mississippi, New Hampshire, Oregon, Virginia, Argentina, Brazil, Canada, and Washington, D.C. Please do not check this list as my geographical file includes all previous students entering M.I.T. in 1901, whereas other data includes only graduates and the more active non-graduates. Please do write in corrections or questions as thereby you may get more personal news in the next issue.

I hope you have noticed how well '05 has shown up in recent mailings as to contributions to the Alumni Fund. Part of this is due to the well-known class spirit, but the major credit goes to **Bob McLean**, our on-the-job Class Agent. . . . In a recent letter to **Fred H. Abbott, VI**, expressing my (and our) sympathy on the loss of his wife, he tells me he is spending his time visiting "my good sons and their good families" in Brockport, N.Y., and Pittsburgh, Pa.—**Fred W. Goldthwait**, Secretary, Center Sandwich, N.H.; **Gilbert S. Tower**, 35 No. Main St., Cohasset, Mass.

# '06

As these notes are put together the plans for our 60th reunion are about complete, as far as quarters and program are concerned. The attendance is indefinite, awaiting the returns from you-all, but we expect at least eight couples and several singles. If you haven't already done so, please let me know pronto that you are planning to be with us on June 12, 13, and 14. . . . In a note from **Bill Abbott** he says, "Most of the group that I knew best at the Tech Chambers have passed on and become memories like the buildings themselves. I value our class meetings, therefore, where I can see those who are left, so will make a big effort to be on hand in June." . . . Bill's zip number was missing but several have come to me through the Alumni Association, with some addresses. **George Burpee, I**, and **Katherine** are at Southgate, Alger Court, Bronxville, N.Y. 10708; the **William Sheldons, III**, were at their Florida residence in Homestead 33030, probably for the winter months as they also go back to his old haunts in Alma. Col. Major **Walter Smith, IV**, reported that he is now in an apartment (#3) at 2481 Golden Rain Rd., Walnut Creek, Calif. 94597; and **Arthur Thomas, II**, reports that he has moved from Warrenton to Lyn Haven Home in Gray, Ga. 31032. Are you showing your zip number?

As you have probably all heard via radio or TV no Boston newspapers were printed—except the Monitor—from Monday, March 7 until?, the strike being in its ninth day as I write. Besides the local news, what we do miss are the death notices. Fortunately we did get the Sunday Herald and were grieved to find among the notices that of **Bill Farley**. However, if that Herald hadn't been printed we would have known about it in a couple days for **Howard Barnes, I**, spotted it and sent me a clipping from the Brockton Daily Enterprise of March 8—thanks, Howard. William Frederick Farley, I, was born December 18, 1883, in Waltham and died March 5, 1966, in Manomet, Mass., after a series of heart conditions. He grew up in Waltham, attended schools there, and lived there while with our class at Tech, being a member of the C.E. Society and was in one of the Tech Shows—Simon Pure Brass. His thesis was An Essay on Concrete Chimneys and the Design of one. Soon after graduation Bill joined the Ambursen Hydraulic Construction Company in Boston and in June 1913 his address was New Birks Building, Montreal. From 1914 or 15 his home address was Waltham, until they moved to Wellesley Hills around 1950, during his long period of service with the Associated Factory Mutual Insurance Companies as fire prevention engineer in the Inspection Department.

When Will retired in the early 50's they moved to Manomet—below Plymouth—where he could indulge in his love of gardening and until recently, grew vegetables, as well as fruits and flowers and supplied the neighborhood. To celebrate their 50th wedding anniversary Will and Helen came up to Wellesley Hills on Sun-



day, June 14, 1959, for a large gathering at the home of son Jarvis, assisted by sister Marie. With many of our neighbors and their relatives and family and friends, Marion and I attended that festive affair. Besides Helen (Jarvis), son Jarvis, and daughter Mrs. John A. Martin of Melrose Highlands, survivors are a brother and sister, also eight grandchildren and two great-grandchildren. The memorial service was held in the Manomet Church. A letter of sympathy on behalf of the class was sent to Mrs. Farley for the family.—**Edward B. Rowe**, Secretary-Treasurer, 11 Cushing Road, Wellesley Hills, Mass. 02181

## '07

In the April Technology Review under the Class notes, you read the sad news of the death of **John Frank** on January 18, 1966. I wrote a letter of sympathy to his daughter, Mrs. Melville N. Rothschild, Jr., and received a brief "thank you" note in reply. She told me: "Dad had been ill since November of 1964 with nurses around the clock. He continued to be interested in everything, and his mind was active and acute until he died." I wrote to Mrs. Rothschild again for further writeups about John if they become available from the Ilg Company, as well as from the colleges with which he was connected. During our college years, John was very active in all Class affairs. In his sophomore year he played on the 1907 Football team. During our junior year he was Class Vice-president. He served on both the Senior Portfolio and Class Day Committees. On Class Day he was the third marshal as well as the Gift orator.

Another one of our well-known '07 men, **Bob Albrow**, I, passed away early in February. I wrote a letter of sympathy to the family but have had no reply, nor have I been able to obtain an obituary notice. Bob has not been well for some years. He has had difficulty in getting around, even with the help of two canes. I have not personally heard from him for about two years. He was unable to attend our last two reunions at Oyster Harbors in 1959 and 1962. During our years at M.I.T., Bob was active in sports, being a member of the 1907 Relay Team and the Track Team. He was Class Vice-president in our senior year, served on Technique 1907, and was a member of both the Junior Prom Committee and the Class Day Committee. He also was Vice-president and Treasurer of the Civil Engineering Society.

I had a nice letter from Professor **Phelps Swett** from his home in Middlebury, Vt. He had heard of the death of John Frank and recalled the fine work John had done on the Senior Portfolio Committee. This Committee consisted of Laurie Allen, Don Robbins, John Frank, Hud Hastings, and Phelps Swett. (I have two copies of the Senior Portfolio to give away to any Class member agreeing to pay postage.) Phelps has three sons and a daughter. His oldest son Phil is operating superintendent of the Sears Roebuck store in Burlington, Vt. He has four children.

The oldest is married and has two children, so Phelps is a great grandfather twice over. Malcolm teaches math in the high school in Fairfield, Conn., while Donald is in the oil business in Maplewood, N.J. His daughter lives in Somerville, N.J., and has five daughters. The oldest was graduated from Alfred College and is now a registered nurse in Rochester, N.Y. Phelps is president of the National Bank in Middlebury, which gives me much in common to talk over when we get together.

The following changes of address should be noted on your Roster of Living Members which was mailed to you this past summer. If you have lost, or misplaced, yours I will send you a revised one upon request: **James M. Gaylord**, 378 Bonita, Pasadena, Calif. 91107; **S. Gilbert Emillo**, Route 5, Laconia, N. H., 03246; **Kirk W. Dyer**, 1 Greenhouse Avenue, Cromwell, Conn., 06416; **Ernest A. Miner**, Beacon Nursing Home, 5400 Beacon Blvd., Fort Myers, Fla. 33901.—**Philip B. Walker**, Secretary and Treasurer, 18 Summit Street, Whitinsville, Mass.; **Gardner S. Gould**, Assistant Secretary, 409 Highland Street, Newtonville, Mass.

## '08

The second dinner-meeting of the class for the 1965-66 season will be held at the M.I.T. Faculty Club, 50 Memorial Drive, Cambridge, Mass., on Wednesday, May 4, at 6 p.m. Hope you can make it. . . . We are sorry to report the death of **Fredrick A. Cole** of 55 Brookside Ave., Newtonville, Mass., on March 2, 1966.—**H. Leston Carter**, Secretary, 14 Roslyn Rd., Waban, Mass. 02168; **Joseph W. Wattles**, Treasurer, 26 Bullard Rd., Weston, Mass. 02193.

## '09

We had not heard from "Steve" (**Joseph N. Stephenson**, X, for some time and we were a little worried, since he has always been one of our most consistent correspondents. We were, therefore, quite pleased to receive the following from his headquarters in Gardenvale, Quebec: "It may interest you to know that I have resigned as Vice-president of National Business Publications, and Editor-in-Chief of Pulp & Paper Magazine of Canada. I have held the latter post since 1916—50 years. This may be a record. We are moving in April to Wolfeboro, N.H., where we have had a summer place since 1910.

"If you want to know what I have been doing, it is this: 1909-1910, Lawrenceville School for Boys, Lawrenceville, N.J.; 1910-1913, Rose Polytechnic Institute, Terre Haute, Ind., Instructor in Chemical Engineering; 1913-1916, University of Maine, Assistant Professor in Chemical Engineering. Co-founder of first American School of Papermaking; 1916-1966, Editor-in-Chief, Pulp and Paper Maga-

zine of Canada; Co-founder, Institute of Industrial Arts and correspondence courses in pulp and paper making; Editor-in-Chief of McGraw-Hill's five-volume textbook, "The Manufacture of Pulp and Paper" (over 100,000 copies sold). Co-founder, Technical Association of the Pulp and Paper Industry." Steve has many other accomplishments, some of which have appeared in earlier class notes. For example, he received the Long Service Medal for his work with the Canadian Boy Scouts; he was awarded a Gold Medal by the Technical Association of the Pulp and Paper Industry, and the Distinguished Service Medal by the Canadian Pulp and Paper Association. We all wish the Stephensons every happiness in his retirement at Wolfeboro and hope to hear from him often.

We have learned from **John Davis** that **Howard Congdon** fell and broke his hip. He was taken to the South Shore Hospital, Weymouth, Mass., where a pin was set in the break. We mailed a card from the Class wishing him a speedy recovery and sending our regards to his wife Ruth.

In the April notes we told of the death of **Charlie Belden** at North Redington Beach, Fla. We have since received several clippings, one from **Lewis Nisbet**, St. Petersburg, Fla.; another from Alfred Hague, '10, Pompano Beach, Fla., and others from the Alumni Office. The one from Lewis shows a picture of Charlie and states that he died at the Mound Park Hospital. He had been in poor health for some time. From the clippings we learned that Charles was the owner of the 200,000-acre Pitchfork Ranch in Wyoming where he raised antelopes which he sold all over the U.S.A. and where he began his animal photography. He became known as the "Cowboy Photographer." In a tour of Europe in 1953 he and his wife Verna interviewed and photographed

## Deceased

**ROBERT M. DERBY**, '01, February 14\*  
**BEN C. MOOERS**, '04, February 11  
**S. ATMORE CAINE**, '05, March 13  
**WILLIAM F. FARLEY**, '06, March 5\*  
**ROBERT C. ALBROW**, '07, February 1\*  
**FREDERICK A. COLE**, '08, March 2\*  
**LAURENCE R. FORREST**, '09, June 16\*  
**EDWARD E. WELLS**, '09, February 4\*  
**NATHAN LEVY**, '11, October 4\*  
**FREDERICK D. RICH**, '13, August 13  
**MAYO TOLMAN**, '13, November 29\*  
**WILLIAM L. CAMPBELL**, '15, February 13\*  
**FRANK A. TRAVERS**, '18, February 18  
**DOWNES McCLOSKEY**, '20, November 7  
**ROBERT J. TOBIN**, '20, January 2\*  
**CHARLES A. GEISINGER**, '23, February 17  
**WARREN C. NORTON**, '26, February 10  
**EDMUND I. KARP**, '27, October 19\*  
**WILLIAM H. NICHOLS**, '27, February 27\*  
**WILLIAM F. SADTLER**, '27, August 14\*  
**A. CLARKE WALLING**, '29, June 14  
**IVAN S. CLIFF**, '33, November 10\*  
**VICTOR N. JAFFE**, '33, December 5\*  
**WALTER F. HILTNER**, '35, February 14  
**FRANK H. BOLTON**, '51, October 31\*  
**JAY F. KOOGLE**, '53, December 29  
**MIGUEL A. SANTALO-CORTINA**, '54, February 9\*

\*Further information in Class News.

Marshal Tito. Alfred Hague adds something personal to Charlie's career. "You probably have had word of Charlie's death before this, but I have had this clipping buried on my desk and failed to send it sooner for that reason. It came as quite a shock to me. I knew him at the Stute and then later by a strange coincidence I ran into him in Wyoming. He had been buying alfalfa for their Pitchfork Ranch from my brother's ranch not far away. He said at the time that he did not know that Emil was my brother. Some of his earlier photography began in that beautiful country. He urged me to stay out there, but I resisted. We both ended up in Florida, but on opposite sides. A thing that many don't know is that we have a ranch country of great size down here." Lewis gives his address as 1100 North Shore Drive, N. E., Apt. 508, St. Petersburg, Fla. 33701, and his only message is "Nothing new with me."

We have received a notice from the Alumni Office of the death on June 16, 1965, of **Laurence R. Forrest, X**, age 78. He prepared for the Institute at Lynn English High School and was a member of the Chemical Society and the Walker Club. Our records show that for one year he was an assistant to Dr. Gill in his laboratory and during most of his career he was employed by the American Cynamid Company at Rockefeller Plaza, New York City. . . . We have also received a clipping from the Alumni Office telling of the death of **Edward E. Wells, X**, at the age of 80 on February 4 at Perth, Ontario. He prepared for the Institute at London, Ontario, and McMaster University, Hamilton, Ontario. After graduating he spent some years operating engineering departments of several large U. S. manufacturing companies. On his return to Canada he was employed as an engineer for several Montreal firms and then became a member of the general engineering staff of the Aluminum Company of Canada. He retired in 1953. He was a member of the Engineering Institute of Canada. He is survived by his wife and two daughters, Kathleen and Frances. We have written to his widow expressing the sympathy of the class as well as our own.—**Chester L. Dawes**, Secretary, Pierce Hall, Harvard University, Cambridge, Mass. 02138; **George E. Wallis**, Assistant Secretary, Wenham, Mass.

# '11

I recently heard of the death on October 4 of **Nathan Levy**. Nathan worked all his life as an engineer for the Sanitary Division of the Boston Public Works Department. He was divorced many years ago and spent the last part of his life in the Commander Hotel in Cambridge. . . . **Roy MacPherson** had a cataract operation November 22 and is doing fine, though unhappy at being unable to drive for a while and therefore inactive. . . . I heard from Mrs. **Seaton** that **Roy**, who is Dean of Engineering at the Kansas State College, has been seriously sick in a hospital for the past two years. . . . The

Alumni Association, recognizing the importance of bequests to the Alumni Fund, has appointed **James F. Duffy** of Chicago as Class Estate Secretary. By the time you read this you may have received a letter from him asking you to remember the Institute in your will. Just another reminder.

**Frank Smith** of Honolulu went to Seattle at Christmas time to attend the wedding of his granddaughter and to spend the holidays with his daughter's family. The paper on which he wrote was illuminated with silk screen paintings by himself showing Hawaiian dancing girls, hibiscus flowers and a lake with Mt. Rainier in the background. At 81 he says he is going strong but creaking at the joints. . . . From his wife, Helen, I learned that **Lieutenant Percy Rideout**, who was killed in the battle of the Argonne in 1918 was honored 47 years later by the naming of a radiological field laboratory for him at Fort McClellan, Ala. His wife and twin sister, Gertrude, were flown to the dedication ceremony and cut the ribbon at the gate.

I am sorry to report that **Grace Tisdale, Harry's** wife, died February 18 at Fort Meyers Beach, Fla., after a long illness. For a long while Harry had devoted all his time and energy to her welfare. . . . **O. W. Stewart** and his wife spent a couple of weeks in March in Sarasota, Fla., then a week each with a sister-in-law near Daytona and with a son in Chapel Hill, N.C. His letter ended with the following, "Thank goodness I have continued to improve and gain strength since my three months in the Jordan and Baker Memorial Hospitals and three operations. "Write to Obie."—**Oberlin S. Clark**, Secretary, 50 Leonard Rd., North Weymouth, Mass. 02191

# '12

**Ralph Symonds** passed away on November 27 in Marblehead where he had made his home for many years. Ralph was the founder of the N. E. Trawler Equipment Company, Chelsea, Mass., manufacturers of heavy winches and other equipment for the trawler trade. He is survived by his wife, two sons and a daughter. The Equipment Company has been carried on by one of his sons. The other son is with Sylvania. . . . **Edwin C. Holbrook** passed away in September in Miami, Fla., where he lived for several years since his retirement. . . . **Henry W. Codding** passed away at his home, 27 Broadale Road, Clifton, N.J., in November. . . . **Louis S. Walsh** passed away on December 29 at his home in Dorchester. Mrs. Walsh is now at the Beatrice Catherine Nursing Home, 47 Ocean Street, Dorchester, Mass., as she has not been well.

**Harold G. Manning** has moved from Waterbury to Heritage Apts., C-1, Ben Sherman Hill, Woodbury, Conn. Harold has just been elected President of the Buffalo Society of National Science which acts as administrator for the Buffalo Museum of Science. A newspaper clipping

reads, "Retirement takes a back seat—life may not begin at 75—it just gets more exciting." Harold was for a time with the Goodyear Tire and Rubber Company, the Buffalo Foundry and Machine Company, and chief engineer of Sunset Corporation and later a partner in the firm of Potter and Duggan, sales engineers, of which firm he was president at his retirement. Harold is leading a very active life and retains his great interest in birds and observation.—**Frederick J. Shepard, Jr.**, Secretary, 31 Chestnut Street, Boston, Mass. 02108; **John Noyes**, Assistant Secretary, 3326 Shorecrest Drive, Dallas 36, Texas.

# '13

This is a renewal of public relations with the members of the Class of 1913 and the Secretary after several months of silence. He, as the Assistant Executive Director of the Canton Housing Authority, Department of Urban Development, has been occupied nearly seven days a week as well as almost every evening guiding the destinies of the Washington Street Project in down-town Canton. . . . **Bob Bonney** writes: "It is a little early for me to plan for the 55th Reunion. Of course, I'd like to be there, but my attendance will depend on whether I am alive, how I feel at that time and whether I can make some arrangement for getting there, since I can't see to drive. Gene and I are feeling reasonably well, but I have quit running cross-country. The best to you and Roz." . . . We enjoyed hearing from **Gordon** and **Ethel Howie** in their travels to Canada while visiting his grandfather's farm, now a suburb of streets and houses. The Howies have sold their property in Maine and now their only home is in Clearwater. He states that sending the class dues did not cause this sudden change of residence. Also, that regarding the 55th Reunion they will gladly say, "Yes, we'll be there," and in three years a trip to Cape Cod will be a pleasant change from the climate in Clearwater. We'll be looking for you in 1968. . . . It is always a pleasure to hear from our fair ones of the Class. Both **Charlotte Sage** and **Ethel Gustin** sent us greetings, one from New Hampshire and the other from St. Petersburg. . . . **Allen Brewer** comes up with a very newsy letter and motto in latin "DV" or in English "God willing." "Maurine and I will enjoy being with you all." That means at Oyster Harbors in 1968. The Brewers are really enjoying these retirement years with redecorating their very attractive house inside and out. Also they make at least one major trip a year. They covered over 6000 miles to Lexington, Ky., Pittsburgh, Frederick, Md., New York City and vicinity, the Maritime Provinces, New Brunswick, Nova Scotia, Cape Breton and the Cabot Trail (Did you see the Howies, they were over this trail last summer?) Of course, you could not find Canton on the map. Yes, your Scribe is enjoying the trials and labor with the Canton Housing Authority. Again, Allen amazes us with his or



their many hobbies; now they are interesting themselves in stamp collecting and visited Miami celebrating "Florex-65" Show which was the stamp collectors' show held in conjunction with 400th anniversary of the State of Florida. Write more often, Allen.

From **Ed Hurst** we received this comment: "I certainly appreciate your optimism for the 55th Reunion. Honestly this looking ahead and faith in the future is much to your credit and firm confidence in the durability of your classmates to keep above the ground. I answer 'Yes' but say a prayer for all of us. As far as I know I am the oldest living member in the Class of 1913, born March 1888. Do you know of any one who is older? If so, send me his name and address and I will write to him and maybe the correspondence would fit into your class notes." Who will challenge? . . . Your Secretary always receives good news and far too frequently bad or rather sad news either from the Institute Alumni Office, classmates or friends. In September the envelope addressed to **Frederick D. Rich** was returned with the notation "unclaimed." In February a notice was received from M.I.T. merely stating that **Frederick D. Rich**, Apt 4, 581 S.W. 6th St., Miami 36, Fla., was deceased August 13, 1965. Again, about the same date M.I.T. notified us that **John S. Brady**, 709 North Portland Blvd., Portland, Ore., had passed away on October 31, 1965. If anyone has more detailed information concerning our two above mentioned classmates, we shall be very glad to give fuller description in our notes. Then about February 11 we received the notification that Professor **Fred J. Evans**, 1222 East End Ave., Edgewood Arsenal, Md., had passed away. Can anyone add more details? . . . Early in December a notice was received from the M.I.T. office with an attached clipping from the Sunday Sun, Lowell, Mass. headed, Concord. "Funeral services for **Edward Mayo Tolman**, 75, a former resident, who died in Picayune, Miss. (November 29, 1965), were held in Mississippi. Burial was in Birmingham, Ala. Born in Concord, he was the son of the late Adams and Harriet (Giles) Tolman and attended the Concord schools. He was a graduate of M.I.T., class of 1913 and worked as a sanitary engineer. He left Concord 22 years ago. Surviving are his wife, Amy (Bryant) Tolman; a daughter Elizabeth Tolman of St. Louis, Mo. and a son, Peter of Scituate." To Mayo's family we of 1913 extend our heartfelt sympathy. . . . Until next month, keep in good health and spirit.—**George Philip Capen**, Secretary and Treasurer, 60 Everett Street, Canton, Mass.

# '14

We had a nice phone talk the other day with **Philip L. Scannell**, Course XII, who lives in Lowell, Mass. He heads the Scannell Boiler Works, an old established institution, and three of Phil's six children are now on the staff of this company so Phil is able to take it easy these days. He

tells me that he has 31 grandchildren, which may be a record number for Fourteeners. Drop us a line if you can challenge this. He is going to try to get to Alumni Day this year so that those of you who knew Phil well can get a chance to swap stories.

And let us switch the subject to the finer things of life such as music, or perhaps there is not such a difference between the sounds of boiler making and some of the music we hear. We have at least one member of our class who has spent most of his professional life in the field of music, **Albert Sherman**, Course IV. Al's letter head reads Harvard Musical Association, which he tells us is a social club dedicated to the encouragement of good music and which sets up periodic recitals by competent people. Over the years he has been a lecturer in music at Boston University as well as dean of the Boston Conservatory of Music. Yes, there is a definite relationship between engineering and music. And just to clinch the fact that Al Sherman is sensitive to all the finer things in life we quote from his recent letter. "Dear Herman, Congratulations on being the only Class Secretary sufficiently aware of events to note the passing of Jake Wirth. Even though you are now a Maniac I'm glad to see you know what is going on here. Now, will they paint all the Institute roofs and domes orange when the place becomes Howard Johnson's?" We retire with an embarrassed bow and apology to our new M.I.T. president.

Department of education. Madame Tussaud's Wax Museum has just opened up on Tremont Street opposite the Common, and we might add, just a few doors from a new 27 story apartment house. The Hub is indeed growing in size and versatility. Attend Alumni Day and be educated.—**Herman A. Affel**, Secretary, Rome, Maine. Mail: RFD 2, Oakland, Maine; **R. P. Dinsmore**, President, 9 Overwood Rd. at West Market St., Akron 13, Ohio; **C. H. Chatfield**, Assistant Secretary and Class Fund Agent, 177 Steele Rd., West Hartford, Conn.

# '15

In answer to our recent letter our new President, Mr. Howard W. Johnson wrote, "It was very thoughtful of you to write me about my election to the Presidency at M.I.T. I want you to know that the good words of the Class of 1915 are very much appreciated, and I hope that you will relay to your classmates my thanks and gratitude." . . . On our February cruise thru the Canal to Lima, Peru, we spent several days in Guayaquil, Ecuador, with Gustavo Gross U., VI, 1950, and his charming wife Carmelia. We have known Gus since he entered M.I.T. in 1946. They and their friends entertained us royally, including sight-seeing trips all over the city, a dinner at the local "Key Club" (yes, even down there) and another native dinner at Gus' lovely modernistic house. Gus is a prominent and distinguished citizen there. The proprietor and

manager of a successful electrical installation company, he showed us many of the jobs he had done including a large new Social Security Hospital, many new buildings and the local baseball park (a surprise to us). In 1960 he was Governor of the Province of Guayas, later Secretary of the Interior and then General Manager in 1961 of the newly created Instituto Ecuatoriano de Electrificación. He has been active in many local and national technical, educational and social organizations, but wants to return to his successful private business. As a parting gift, they gave us a gaily decorated bottle of rum, the base of the famous local Pisco Sour—we're afraid to use it! We had a wonderful time with Gus and Carmelia, to the point where, with no warning of "all visitors ashore," they were caught on our ship as we pulled away from the dock at Guayaquil. This called for many excited commands in Spanish and ringing of signal bells until an emergency gangway was pushed out and with a nervous leap they both made it ashore. Upon our return, **Al Sampson** greeted us with "A cheery welcome 'home' from the land of the outstretched palm, the sand flea, and the hopeful philandering widow. May you now settle down with peace of mind and contemplate with mixed emotions Form 1040." Thank you, Al, for everything except that mention of 1040 due April 15.

A fine letter from **Frank Boynton** and our thanks to you, Frank: "I knew that you have received many, many letters of appreciation which are richly due to you and your fellow officers for the great job you did at our 50th. I was indeed sorry to miss it but having suffered a couple of heart attacks in the early part of the year it is fortunate I did no more than wish I had been able to attend. Seem to be all right now and am feeling fine. I have just read the February '66 issue of the Class notes and I continue to marvel at the grand job you do of producing and editing. They are always interesting and newsworthy. 1915 is indeed the Class Supreme but I have a very strong feeling that the great spirit shown is due in a large part to that supreme secretary. Regards to your nice wife." . . . **Whit** and **Marjorie Brown** spent the winter in Bradenton. He went over to Largo for a visit with **George Urquhart**.

**Henry Daley**, whom we all missed at the New York dinner in January and will be glad to see here in June: "Thanks for your solicitous note, and my regrets at having to miss the N.Y. dinner. I always enjoy this annual event, but had to forego it this year on account of a bout with a virus which left me bushed. I'm feeling good again by this time, but just didn't feel up to going over to N.Y. this year. I also had the midwinter dinner of the Philadelphia M.I.T. Club a week previous. We hope to attend the Class cocktail party next June which is nearer than you think. That's the way time moves as one gets older." . . . In a recent Lowell, Mass. newspaper there was a fine picture of **Reggie** and **Jo Foster** enjoying themselves at the annual Heart Fund Ball at the Vesper Country Club in Lowell. It's great to see them both looking and feeling so well. Anyone else for the Reunion



slides? . . . Read what **Gil Peakes** said about his showing them at home, "I have completed my private showing of the boxes of slides of the super-Reunion and have them all packed up ready for mailing under separate cover later today. I enjoyed reviewing them and Mrs. Peakes also had fun looking."

Be sure to plan to come to the Class Cocktail Party, M.I.T. Faculty Club, Monday afternoon, June 13, at 4 o'clock. All Classmates, families and friends are warmly invited. . . . It's pleasant to report Wally Pike has recovered from his recent surgery and is back at his desk. The cheerful notes and cards you fellows sent him at the hospital did a great deal for him, "As you know I am recovering from a recent operation and will be unable to attend the N.Y. meeting. This is the first one in many years that I will miss and it is a great disappointment as I look forward to this meeting as one of the high spots of the winter. Please give my best to the gang and my thanks to the many who have sent me cards and letters. They were greatly appreciated. Please sign me up for the 1967 N.Y. meeting and I promise I will be there." . . . Early in the summer, **Ray Stringfield** gave a paper on "Selling the Customer the Right Specifications" before the Quality Control Council in Los Angeles. . . . Some pleasant correspondence with Cac Clarke, hard working Secretary of 1921, has resulted in the Review Editors setting up a clearing house for any news-worthy information Class Secretaries may have about members of other Classes.

It's sad to record the passing of a prominent and popular Classmate, whom we'll all remember and miss. **Bill Campbell** passed away February 13, at Manchester Depot, Vt., his family homestead to which he had retired a few years ago. Fran and I felt particularly close to Bill, as whenever he was in Boston, he would come in to see us, and we visited him up there each summer. We were fascinated by his old farm house, which he was remodeling in true engineering style and we thoroughly enjoyed the sightseeing trips through the picturesque Vermont countryside. Bill's archives were packed with interesting and amusing stories and histories of his family's activities back through the Revolutionary and Civil Wars and his own experience in France in World War I, his undergraduate days at Yale, Class of 1913, and his most unusual and detailed records of his early railroad days. He was a ring-leader in those famous Course I summer Camp days and at Class Dinners would regale us with stories of his escapades down Maine. The Boston Globe carried the following obituary: "Private services will be held for William Lyman Campbell, 73, retired M.I.T. professor and business executive. Mr. Campbell died Sunday. He was professor and head of the department of food technology at M.I.T., from 1945 to 1951. After leaving M.I.T., he was named President and Chairman of the Board of the Coulter Corporation of Texas. Prior to his retirement he was associated with the Food Machinery and Chemical Corporation, San Jose, Calif. Mr. Campbell was born in Cincinnati.

He was graduated from Yale in 1913 and received an S.B. degree from M.I.T. and an LL.B. from Boston College. He began his career in the operations department of the Baltimore and Ohio Railroad in 1914. During World War I he served as a first lieutenant with the air service of the U.S. Army. From 1917-19 he was with the Office of Scientific Research and the Office of Quartermaster General. In 1932 he was named Vice-president and director of the Kroger Grocery and Baking Company, of Cincinnati. In 1942 he was appointed Vice-president of the American Machinery and Foundry Company of New York and the following year he became Vice-president of Brown Company of Berlin, N.H. He served as a member of the Defense Production Administration in 1951 and 1952. During World War II he was deputy rubber director. He was a member of the Engineering Institute of Canada, the Massachusetts and Boston Bar Associations, the Newcomen Club, the New York Rail Club, the Railroad Machinery Club, the Yale Club of New York and the Downtown Association of New York. He leaves his wife, Helene (Underwood), and three sons, Douglass, Stafford and Munson." We have written to his son Douglass, Vice-president of the New York Central System.—**Azel W. Mack**, Secretary, 100 Memorial Drive, Cambridge, Mass. 02142

## '16

Our worthy President, **Ralph Fletcher**, starts us off with: "It's practically here—just a month to go—that little old 50th Reunion! How did it get here so fast? Let us give friendly warning to the Classes of 1917 and 1918 and even the younger ones: Watch it! This thing comes on fast!" We have been warned by **Ralph and Steve Brophy**, Reunion Chairman, that no attempt should be made to list all the things that are going to happen on the 50th, for sure as shooting and taxes, some scintillating something will be omitted. But a partial review of some of the highlights may not be out of order. First of all, on Thursday afternoon, June 9, **Stew Rowlett** and his committee will be on hand to register you at the girls' dormitory, McCormick Hall, where sleeping quarters will be provided on Thursday night as well as on Sunday and Monday nights, June 12 and 13. And we'll have breakfasts there on the three "mornings after" as guests of the Institute. On Friday morning, June 10, the Class of 1916, as the 50-year class, has a prominent place in the academic procession, with cap and gown (and a Master's or maybe a Doctor's hood) furnished to each of us, to the Commencement exercises where 16ers will be seated on the platform with members of the Corporation and faculty. Wives as well as husbands and our guests will be seated in a group. Then at noon, the Class and wives (or husbands) will be the special guests of the Institute at the Commencement in the Great Court. There we'll all hear one of our own speak for our

Class to the graduates and the assembled guests. In mid-afternoon we leave by automobile or busses for the Reunion on Cape Cod. And there we will stay for two whole days at what promises to be the biggest reunion of all. **Hy Ullian** and his Hospitality Committee on the Cape will do their best to let everyone possible see and understand why it is that so many consider Cape Cod the place of places. The Oyster Harbors Club, with its excellent facilities and cuisine, has been the repeated choice for many of our five-year reunions when the numbers were large. The big event of the week-end is the 50th Anniversary dinner deluxe, and as Steve notes: "Entertainment by producer **Irv McDaniel** and director **Jimmy Evans**—very brief emotional remarks by our President." At noon Sunday, we will have one of those famous New England clam bakes on the beach, weather permitting, and as we've said before, the weather permitted in both 1965 and 1964! On Sunday afternoon, June 12, we return by automobile and busses to McCormick Hall in Cambridge. Then, as Steve points out: "President and Mrs. Stratton have invited our Class to be their guests in the garden of the President's house on Memorial Drive. This is a first!" On Monday noon will come the Alumni Day luncheon in the Great Court when our president, **Ralph Fletcher**, and our Class Gifts Chairman, **Joe Barker**, will speak for the Class. And for those who make the occasion complete, we'll attend the Alumni Day dinner in the Rockwell Cage at 6:30, preceded by cocktails and canapes, courtesy of our 50th Reunion chairman, and later an outstanding program in Kresge Auditorium.

Commenting now in mid-March on the various reunion preparation activities we are aware of such things as these going on: **Peb** and **Dolly Stone** off to the Caribbean for the month of March where he can forget that statistical maneuvering on the Reunion booklet data; **Steve Brophy** staying right at home in New York instead of traipsing off to Jamaica or some place, so that he can write countless letters and answer even more questions from his multi-committee helpers; **Joe Barker** working on one of the most thankless jobs of all, the 50-year gifts; the Regional Committee chairmen, **Jim Evans**, **Ralph Fletcher**, **Cy Guething**, **Vert Young**, and **Irv McDaniel** buzzing around trying to turn 50-50's into 99-01's; **Walt Binger** saying "Wait'll you see what I've been doing!" with the rich store of replies to see his historical questionnaire; **Obie Pyle**, as a typical representative '16er, keeping in contact with boys like **Raef Alfaro-Moran** in El Salvador; **Jimmy Evans** worrying about why some people don't send in their blazer measurements when they should; **Mary Barker** keeping touch and planning the women's activities at the 50th; the Host Committees in Cambridge and Osterville, headed by **Henry Shepard** and **Hy Ullian**, developing their plans; **Bob O'Brien**, honorary member and Reunion Secretary, doing all sorts of things including making arrangements for the 50th picture; **Izzy Richmond** wondering whether the Blue Plan or the White Plan or the Green Plan will best handle the transport-

tation problem to the Cape; and Little Old Me writing up all this stuff!

Many plan to attend the complete program from Thursday afternoon until Tuesday morning, June 9-14. Some can attend only the Friday and Monday sessions in Cambridge. And we know of one (it is hoped he can change his plans) who thinks he'll be able to make only the Cape two-day stretch. Our hard-working Reunion Chairman, Treasurer, and Secretary urge that you let any one of them know of any last minute change in plans. If you have said you will not be able to attend but now find you can, by all means get in touch right away. For both Ralph Fletcher and Bob (R.L.) O'Brien the address is the same: Box 71, West Chelmsford, 01863.

We have a few spot items from individuals about the reunion. First of all, **Lewis Dow** writes from Odessa, Fla.: "I'll see y'all at the Cape" for a couple of days "if the good Lord is willing and the creek don't rise." Down there he says: "Cutting, trimming, mowing, and fertilizing the five 'estates' here sure keeps me busy. Most all of this work is under contract (verbal)." After the reunion he's going to do some visiting "in Wenham, Mass., Exeter and Salem, N.H., Haverhill, etc.—then back to the 'estates' before the grass gets too high." . . . Henry Shepard reports having heard from **Paul Page Austin** in San Francisco who is not going to be able to attend the reunion and says: "Am not retired and have no intention of retiring as long as I am able to work. Am with Arthur G. McGee of Cleveland in the Non-Ferrous and Mineral Division." . . . And **Kem Dean** wrote on February 24: "Talked with **Lev Lawason** a few days ago and he plans on attending the reunion too. I think Lev will probably fly direct from L.A. to N.Y.C. or Boston but in any case will look forward to seeing him there. He has visited us in Houston many times and we will try and persuade him to come back with us after the reunion is over." In November the Deans visited **Kem's** brother in his new home in Sanibel, Fla., a fisherman's paradise—Ken went at it two and three times a day. While on his way back at the Tampa airport, he "phoned Stew Rowlett and had a very nice chat with him. Wish we had more time to run over to Clearwater to see him." . . . **Buck Bucknam** says he plans to be at the doings in Cambridge—will come all the way from Auburn, Calif. . . . **Saul Hoffman** looks forward to participating in the cap and gown procession for "I will be marching, God willing, with my two sons (both at M.I.T. and both M.I.T. 'products'), Professor Myron A. Hoffman and Professor Allan G. Hoffman. Incidentally Professor Myron has been asked by the Italian government to set up and teach a magnetohydrodynamic division and lab for them at Frascati (suburb of Rome) during the year September 1966-September 1967, which has been okayed by M.I.T." **Irv and Kay McDaniel** are considering the possibility of going up to Osterville a day or two ahead of time, and there give thought to on-the-job planning of entertainment. He has not authorized us to say this, but we think he wouldn't mind if he had a little

help and perhaps even wouldn't mind if we were to put something like the following in the column: "We n.e.e.d Y.O.U. (like the Dodge boys TV commercial), if you are qualified in any of the following categories—(1) if you are willing to work; (2) if you like to give advice; (3) if you like an occasional drink; (4) if you like to sit around and talk; and (5) if for no reason at all."

We are always, it seems, running across pictures of **Joe Barker**, and this time it is in the January-February issue of the Trinity Parish Newsletter. And it relates to a most significant honor for Mr. Frederick E. Hasler and Joe, who are the Churchwardens of Trinity Parish in New York. A letter received by them from the Reverend Joseph McCulloch, Rector of St. Mary-le-Bow in London, reads in part: "As you may know, with St. Mary-le-Bow are united nine other churches, whose buildings were destroyed either in the Great Fire of 1666 or in the German blitz of 1941. One of these is St. Mildred's, Bread Street, which was destroyed in the 1941 blitz, and is chiefly distinguished for its association with John Milton, whose church it was. Although these churches have been destroyed, churchwardens to them are appointed every year at the Annual Church Meeting of St. Mary-le-Bow and they are, in fact, associate Churchwardens of St. Mary-le-Bow. It has been proposed that the happy relationship which exists between St. Mary-le-Bow and Trinity Church would be well expressed if the two Churchwar-

## 50th Reunion

dens of Trinity were 'ex officio' also Wardens of St. Mildred's, Bread Street, London. I am writing now to inform you of this, and to ask you if you will consent to accept the title of Warden of St. Mildred's, Bread Street, and to have your name appropriately inscribed on the Board outside St. Mary-le-Bow. . . . Congratulations, Joel!

If you want to hear an interesting story, of something quite different, try talking to **Hy Ullian** about his company in Boston. It is one that he has built up from scratch, from a single employee, himself, to the present organization—the New England Survey Service—with a staff of 175 skilled specialists and technicians. The business is civil engineering, mostly surveys of all kinds. The work includes land surveys for design, landtaking and construction for highways, bridges, tunnels, industrial complexes and urban renewal projects, as well as astronomical surveys along the DEW line, geodetic pin-pointing along the Eastern Seaboard for space exploration, hydrographic surveys, photogrammetric mapping and municipal mapping provided by aerial and ground techniques. Hy is still very active at all this, but with Frieda takes frequent short vacations in Florida for sun and relaxation, and in the summer he can be found about five out of seven days a week watching over the care of the grounds of their Cape Cod house in Chatham on the Cape. Frieda too keeps more than busy. She is president of the Radcliffe Alumni

Board and early this year was appointed by the Governor to serve on a newly-formed board of Higher Education. We were glad to hear from **Merrill Pratt** of Prattville, Ala., late in February. For well over a year he has been chairman of Continental/Moss-Gordon Gin Company whose machinery is sold in practically all of the cotton growing countries of the world, except China and Russia. He notes: "I am not doing too much traveling now, but do visit various cities here in the South."

**Arvin Page** has some thoughts on the composition of various boards of professional engineers, having just completed a long term on the State Board of Registration for Professional Engineers and Land Surveyors of North Carolina. Last fall when the Governor asked him to serve for another five-year term, Arvin said he thought he had served long enough, and that the Governor should introduce some fresh, younger blood. He notes: "I know I shall miss the meetings of the NCSBEE as I enjoyed these gatherings very much. The business meetings were rather boring, but I derived a great deal of pleasure in meeting and conversing with the men from the various states. It would have been much more interesting, and I think the proceedings would have been of much more value, if there were fewer college professors and more practicing engineers on the various boards."

**Thomas Atchison** of Princeton, N.J., says he has now enjoyed eight years of retirement, and "a modest amount of travel, mostly to visit my three children and eleven grandchildren. Two hobbies: dancing on ice and working on a family history." . . . From William C. Davis, Jr., '11, we have received two wonderful pictures of **Joao Correia** and his wife taken at their home in Lisbon by the Davises in 1959 on the occasion of a visit with the Correias. Our account of John's life and career was given in the March issue. Mr. Davis mentions that during the 1959 visit, John described in some detail the air-conditioning systems he had installed in the Tivoli Hotel and was working on then for the new Ritz Hotel. (See pictures at Reunion.)

**Howard Claussen** received in January what we know must be pretty high honor for a man who has just reached that ennobled state where one gets Social Security benefits every month no matter how much he makes. He was the honored guest at a big 200-person "wing-ding" at the Wychmere Harbor Club in Harwichport, thrown by the U.S. Power Squadron (headquarters at Englewood, N.J.) Cape Cod Squadron, for he was the one and only individual on the Cape to be made an official "Navigator" in the year 1965. Celestial navigation is something quite different from piloting a boat around in inland waters. It is known to be such a challenge even to mature young mathematical minds, that neither Jim Evans with his math teaching in the Paterson, N.J. High School nor any other '16er is going to get into a navigation argument with Howard. So congratulations to Howard for his achievement after five years of work, and for what we assume is now his ability to inform any Captain of his ship's



exact position, by shooting the sun, the planets, the stars, or the moon with a sextant and using the U.S. Nautical Almanac. Some of us wish that Howard, with his new learning, could find some way to improve the steering of the current Ship of State. . . . **John Gore** continues active in Boy Scout work in Canajoharie. He says he has not seen any '16ers lately but: "Every October on our annual trip to Rockport, Mass., I see John Kieran—we are both ardent bird watchers—it is a most interesting hobby. His autobiography 'Not Under Oath' which came out last year is a very readable book, especially for anybody interested in sports or nature."

About five years ago we received notice of a change in **Milton Schur's** address from North Carolina to New Haven, and only recently we got the story behind the change. For it was then that he moved from his 16-year position of Director of Research and Development of the Ecusta Paper Division of Olin Mathieson Chemical Corporation in Pisgah Forest, N. C., to Vice-president for Research and Development of Olin Packaging in New Haven. Following graduation Milton worked for a short time at Tech with Dr. William H. Walker. During World War I he had leave to work with Bob Wilson in the Chemical Warfare Service. He returned to work with Dr. Walker until 1919 when he joined the Research Department of Brown Company in Berlin, N.H. He was with them for 25 years, first as a research chemist, next as Assistant Director of Research, and then as Director of Research. In his work with Olin Mathieson and Brown Company, he has been active primarily in the field of cellulose technology, and holds over 200 U.S. patents (the majority of which are the subjects of corresponding patents in various foreign countries) relating principally to alpha pulps, wet strength papers, fine papers, all of which have met with commercial success. We understand that in 1964 he was awarded the first Olin Research Award "in recognition of unusual and special effort culminating in a finding that contributed significantly to the advancement of the corporation."

One of the **Raef Alfaro-Moran** circulated letters that was returned carried these notes—the first from Irv McDaniel: "Great to hear from Raef—we were always muy simpatico. I was going to visit him and George Camp this last spring, as you know, but I didn't make either place." And the second from **George Camp** in Mexico City: "Found this on my return from a wonderful trip to Europe—Christmas in Paris and New Year's Eve in Barcelona. First news I have had of Raef since 1916 and I am grateful for it. Till June!" . . . And speaking of warmer places we have the itinerary of **Peb** and **Dolly Stone** for their month of March away from it all: "Starting March 1 our first stop is San Juan and a plane to Mayaguez within an hour, thence to Rincon and Sea Beach Colony, all in Puerto Rico. Ten days later to Little Bay Hotel on Saint Martin; still later to Estate Good Hope near Frederiksted on St. Croix, U.S. Virgin Islands; and finally to Charlotte Amalie, on the island of St. Thomas."

Their parting message was: "Keep the home fires burning!" . . . Also from warmer climes came word from **Don** and **Nell Webster** in Nokomis, Fla.: "Now basking on the beach. Being New Englanders and used to wintering it through we now feel like sissy, sensuous Sybarites." Don says the only poetry to go with his "Pelicans in Tropical Florida" post card is the old wheeze: "A wonderful bird is the pelican, his bill can hold more than . . ." you finish it! . . . And in February **Cy** and **Gyps Guething** reported the coldest winter they have ever experienced on Harbour Island, Bahamas—temperature getting down at times to 56 or 57 degrees. "And this without any heat in the house—we really had to cuddle." . . . In contrast, **Joel** and **Virginia Connolly**, writing from Tucson, said, "We wish we could send you some of the beautiful weather we are enjoying right now (Feb. 28)—72 degrees this afternoon here." . . . About the same time **Francis Stern** advises us all that he was golfing daily, for the exercise rather than for the score, that the temperature was 80-83 for three days, that Irv and Kay McDaniel were shortly to arrive from Newport Beach for an over-night stay, that they all were going to work on entertainment plans, and that Walter Metz's correct address in Palm Springs is 365 Roxbury Drive.

Again from Florida, this time from Deerfield Beach, we hear from **Howard Smith**: "While enjoying the Florida winter, I am designing a 46-foot yacht. Designing houses, yachts, and furniture and constructing the furniture keeps me busy. I have the use of a 34-foot Cris Craft in Florida and have a 26-foot auxiliary sloop for summer use in Mystic. My son and I built the sloop." . . . **Ed Williams**, in Jensen Beach, Fla., for the winter since Thanksgiving, tells of comfort in Frances Langford's Outrigger Resort: "There is always a show of fine sports, fishing boats and large cruisers in the marina, so it gives one a chance to see how the more active people have fun. There are also several retired boys between 'three score and ten' and 92, whose wives do the driving in most cases. I have seen no '16ers but if any pass this way, wish they would stop and say 'Hello.'" . . . **Will Wyld**, in Anna Maria, Fla., writes that he has had a good letter from **Earle Pitman** in Camden, Maine. Will says that he and his wife had a very pleasant visit with the **Wally Wolfes** in Bradenton, for they have known Wally's sister for many years. Will notes: "Wally's delightful wife is still engaged in teaching school here in Bradenton and is very devoted to her profession."

As you may know, we have a monthly Class luncheon in New York, in the Chemists' Club, 52 East 41 Street, at noon on the Thursday following the first Monday of each month, from September through May. Those present in March were Joe Barker, Bill Barrett, Steve Brophy, Art Caldwell, Jim Evans, and Ken Richmond. If you are going to New York, try to make it include the next luncheon, May 5, and try one of the chef's sizzling golden bucks! . . . Before closing, we would like to add a note of sincere regret,

and sympathy to the family, on the passing in January of Carleton E. Tucker, '18, of the Electrical Engineering department—one of the finest at M.I.T. it has been our privilege to know over a span of nearly 50 years.

So once again, as Ralph Fletcher and Steve Brophy are constantly reminding us, keep those dates, from June 10 to 14, or better still from June 9 to 14, wide open for the 50th—for the commemoration in Cambridge and the celebration in Osterville. And, to keep the column full and interesting, write a little but write often to any of your Class officers.—**Harold F. Dodge**, Secretary, 96 Briarcliff Rd., Mountain Lakes, N.J.; **Ralph A. Fletcher**, President, Box 71, West Chelmsford, Mass.; **Joseph W. Barker**, Vice-president, 45 Beechmont Drive, New Rochelle, N.Y.; **Hovey T. Freeman**, Treasurer, 45 Hazard Ave., Providence, R.I.; and **T. D'Arcy (Steve) Brophy**, Reunion Chairman, 470 Park Ave., New York, N.Y.

## '17

Our first news from **James W. Anderson** since the publication of our class history, on the occasion of our 30th anniversary report, is as follows: "I am not much for writing long stories about myself, so I would be quite content if the 50-year record book said simply: Anderson, James W. '17, XI, SB, 101 North Fig Tree Lane, Plantation, Fort Lauderdale, Fla." According to the class history, Jim spent most of his business life with the Dictaphone company. Our record shows he should be enjoying his 73rd year on his fig tree plantation in sunny Florida, which, according to some winter visitors, was not so sunny this year.

The Florida climate must induce brevity for one of two reasons: either the climate is so invigorating that one can keep busily engaged most of the time, or the weather is so balmy that one is lulled into a state of languidness. The following is from **Elmer C. Matthews** of Orlando, Fla.: Two years at M.I.T. 1913-1915. Graduated from Lowell Technological Institute, 1917. Enlisted April 1917 in F Battery 102 F.A. 26th Div. Commissioned 2nd Lt. F.A. June 1918. Instructor of artillery, Samur Artillery School, France. Married June 1919. Took a job August 1919 in Thermo Mills Inc., Hudson, N.Y. Worked up through superintendent, general manager, treasurer, and purchased the mills in 1944. Liquidated the business in 1949 and retired to Orlando, Fla. Accomplishments: While working I developed a fabric which eventually was made into the largest selling top coat in the country. Hobbies: keeping away from work." . . . **Thorndike Saville**, who resides in Gainesville, Fla., continues his active consulting engineering career as a member of the Secretary of the Interior's Task Force on planning for the Potomac River Basin.

Why couldn't more of us have developed know-how in some line that would make the State Department send us to far off lands to impart our knowledge to new na-



tions? A letter is at hand headed Kenya Meat Commission, Nairobi, Kenya, from **Ken Bell** who is evidently teaching people how to tan leather. Ken writes: "Perhaps you are surprised that we are here. So are we. Since our Peruvian trip has been postponed until next fall, we planned a ten weeks vacation in Mallorca. After we had all our reservations, I was asked to make an eight week feasibility survey here, so we revised our plans and flew from Mallorca to Barcelona and Rome, and then directly here on February 4. To go back to our story, we left home on December 28 and went to New York, where we secured our Kenya visas, then sailed on the 31st on the *Prinses Margriet* of the Holland American Line, to Rotterdam. The food and stateroom were wonderful—tub and shower; two big windows; superb New Year's Eve buffet, etc. We taxied the 70 miles from ship to Amsterdam, saw old friends, and revisited the Rijksmuseum to see the Rembrandts, Vermeers, and Terborchs. The next day we flew to Madrid and enjoyed the wonderful Royal Palace (2800 rooms). Furnishings, tapestries, paintings, etc. are in perfect shape. It makes the Louvre and Versailles look shabby. The Prado with the Velasquez, Goyas, Murillos and El Grecos, displays them wonderfully. Toledo was delightful. We flew to Mallorca where we spent three restful, delightful weeks, and saw **Dex Tutein** and his wife who live there. The eight million almond trees were in blossom. There is a real castle just outside Palma, with moat, turrets, battlements, bridge and dungeon—floodlighted at night; caves, Spanish dancers, cute little ports, pearl manufactures, and excellent shopping. After a week of rain, we had perfect sunny, warm weather. Our hotel, recommended by Don Webster, 1916, is new with fine rooms, and with a balcony overlooking one of two swimming pools. The hotel has many public rooms in one of which was a grand piano which I was allowed to play. There are classical music concerts twice a week, lots of congenial people, and three big meals. Lunch and dinner each have four courses with well groomed waiters, etc.; all of this at unbelievably low cost. (Watch out for that waistline, Ken). . . . This is an amazing land: cool nights, warm, but not hot, days, and just below the equator. It is a lovely country with modern hotels. As I sat at lunch today (February 17), I saw Sikhs, Pakistani, Hindus, Chinese, Masai with beaded ears, Kurus, English and assorted tourists. . . . The first day, as I was driven out to the plant, I saw seven giraffes beside the road, an ostrich and wildebeests. A python was killed recently at the nearby farm, and the farmer's son, driving home at dusk, started to pass a car stopped on the road, saw five lions sitting on the hot tarvia. A sign on a local store says 'shoes repaired—spears sharpened'. . . . We hired a car and were driven, with a ranger as a guide, into the National Park just outside the city. We saw seven lions, two hippos, many giraffes, wildebeests, wart hogs, all sorts of beautiful gazelles and deer, zebras and herons. Naturally one must remain in the car. We are to go to Amboseli near Mt. Kilimanjaro this weekend, and to Treetops later. I

doubt that we will get to Lake Victoria during our six weeks stay here. We fly to Addis Ababa on March 18, Athens on the 22nd, and board the *Constitution* on the 22nd at Genoa, arriving in New York on April 1. Due to overcrowding by tourists, we are in an excellent motel, but are moving Monday into the old, but excellent, Norfolk next Monday."

**Dix Proctor's** ship, which was to have sailed January 6, is now scheduled for sailing March 1. The Farrell Lines reported that Uncle Sam requisitioned five of their ships for Vietnam service and then in a Baltimore fog, a tanker rammed the African Moon causing it to go in for repairs. After that, the inclement weather retarded loading. Such are the "joys" of traveling in wartime.—**W. I. McNeill**, Secretary, 107 Wood Pond Road, West Hartford, Conn. 06107; **C. Dix Proctor**, Assistant Secretary, P.O. Box 336, Lincoln Park, N.J. 07035.

## '18

Outside there is the windy lullaby of March falling snow as my thoughts go trundling along to the upland meadows which will be rich with green about the time you read this. Meanwhile, there are letters, less exuberant than those of our youth, but now full of the wine of years which seem as swiftly gone as the passing shadow of a jet plane. **Henry R. Lacey** reminds us that, "It has now been over 51 years since we first compared notes arising from our joint struggles under Blackie, George, Cross, Gracey, Tyler et al. After a short hitch with the Harvard Reserve and two years doing field work in the boondocks of Cuba and the mountains of Peru, I was commissioned in the Civil Engineer Corps of the U. S. Navy where I served 34 years. This entailed design, construction and maintenance of Navy Public Works, plus a tour with the Sea Bees. In short, the navy helped me to see the world, but not through a porthole. In 1956 we came to anchor, or should I say more properly we dry docked on an eight acre place in Florida. There were more citrus trees than I wanted to look after properly, so after eight years, we unloaded the property. Now I have no yard work. All my time is free to play nine holes of golf a day. That's about my limit. Frustrating, isn't it. When we have the energy we lack the time; when we have the time we lack the energy." Yes, Henry. Put another way, by the time we have money enough to burn, the fire has gone out. . . . I wrote **Don Goss**, saying of the swiftly gone years, that I was well adjusted to bifocals, not too unhappy with a denture, and resigned to the impending need of a hearing aid, but that I did miss my mind and letters from the brethren. He replied, "You describe yourself as something of a wreck. Why, son, you never had it so good. I say this as an elder statesman, for I'm sneaking up on 72, come July. This gives me imponderable joy, for then I can collect my social security no matter how much I earn! The prospect makes me glow all over. Last

October I closed my Boston office and consolidated my affairs in Swampscott. It's wonderful not to be commuting to Boston every day. Beside all that back and forth mileage I've been to Hawaii, Bermuda, and in two weeks I'm going to South Carolina for a spell. I'm still busy enough to keep both out of mischief and in pocket money. Of course stairs are being made steeper these days, newsprint is fainter, and people mumble instead of enunciating as clearly as we always have. My old zip is still there. Isn't that what counts, old classmates?"

**Harold Weber**, full of the wine of life and writing about his own ferment, says, "In 1960 M.I.T. officially retired me for age. As you know, what happens then is professors are put on half time for half pay for another five years if they haven't offended anyone in power. This was not a new experience for me because I went on part time voluntarily eight years ago to accept an appointment as chief scientific advisor to the U. S. Army. Since 1958 this has taken me to Washington for at least a week each month. In addition, I still carry on the consulting work with Universal Oil Products in Chicago which has now been going on for 39 years. As of April 1 my residence will be Mason, N.H., not too far from where you live in Jaffrey. It's a little town of about five or six hundred inhabitants, some 50 miles from Boston. I've owned the place for 12 years and consequently know many of the townspeople. My house was built in 1770 by a Captain Benjamin Mann. He led a group of 27 men to the Battle of Bunker Hill. I have restored the place as nearly as possible to its original condition, with modern improvements such as light, heat, and plumbing. I shall still remain professionally active with Universal and other chemical engineering projects for the foreseeable future, but intend soon to give up the army assignment. My mathematics is a bit outdated, but what of it? Computers do the work now. As we advance in age scientists all become philosophers. We don't have to supply yes or no answers."

From **Clarence Fuller** comes an inquiry about a former chemist who became a cleric. The Massachusetts Council of Churches has an imposing list of divines on the back of its official stationery. Under the heading of Program Departments and Committee Chairmen appears "Research and Strategy, the Ven. **George O. Ekwall**." Clarence wants to know whether, "Ven. is an abbreviation for venerable or venerated? In either case, when applied to a youngster, like George, what do they call you or me? Anyhow, congratulations for your being able to exceed the Biblical allotment of three score years and ten." . . . There are few times when the swiftness of the years is more apparent than when one loses a mate. The death of Maurice Landis was reported last month. A communication from his wife begins, "Maurice left for work Friday, December 3 at the LaSalle Steel Company in Hammond, Ind. (as 'consultant' since he was retired September 1) and was stricken with a cerebral hemorrhage a short while after. In a coma he was taken to St. Lukes' hospital where he died

December 10 without regaining consciousness. We were still in love after 46 years of married life and were making plans for the next few years. He was 71, but seemed to be in excellent physical shape. I am grateful for so many happy memories: for the countless friends from LaSalle Steel Company, and for all my activities in which he participated."

**Leo Blodgett** was becoming full of years as head of Ellis-Blodgett and Associates of New York. He was an editor for the Society of Naval Architects and Marine Engineers as well as a consulting editor for the American Society of Mechanical Engineers. On March 4 he died in his 69th year, to be survived by a wife, son, two daughters and one grandchild. Hopefully, more details will be available later. Meanwhile, concentrate on the tranquility of the upland meadows in the spring.—**F. Alexander Magoun**, Secretary, Jaffrey, N.H.

## '19

Florida seems to be a good place for reunions. We have seen **Arklay Richards** and his wife Mary, who are staying at the Silver Thatch Inn at Pompano Beach, the tennis center of the East Coast, and they are taking advantage of the courts. Our classmate, Ark, is a wizard on the courts and Mary is one of the best amateur players in New England.

**Ev Doten** and Iva stopped in Delray Beach over night, and the Dotens, Richards and Smoleys had dinner together. The Dotens spent two months in Europe last summer and had a wonderful trip. They both look young and full of pep. They brought news of **Henry Derby** who now lives in Wolfeboro, N.H., after spending many years in the Army. . . . **George and Cecily McCarten** have had lots of snow this winter in Lancaster, N.H., but seem to be doing well. George spends quite a bit of time in a local machine shop business, of which he is a director. . . . We have the following new addresses: **A. Stuart Kelsey**, 55 Fenwood Grove Rd., Old Saybrook, Conn. 06075; **Horace D. White**, Route #4, Box 51, Vandalia, Ill. 62471. . . . Your Secretary has had a fine few months in Florida, will return to Scarsdale in early April and hopes to find news of other classmates.—**Eugene R. Smoley**, Secretary, 30 School Lane, Scarsdale, N.Y.

## '20

It is with profound regret that your Secretary must report the death of two of our prominent and beloved classmates. **Bob Tobin** died on January 2. His home was at 2170 Redding Rd., Fairfield, Conn. He leaves his wife. Bob was long time head of Tilo Roofing Company. In recent years he had traveled extensively and I am told that he was an expert hunter of big game with many trophies to show for his prowess. His loss will be keenly felt

by the large number of classmates who loved and admired him. . . . **Oswald Cammann** of Groton, Mass., died on January 28. He had been connected with the Patene Section of the D.S.R. at the Institute prior to his retirement. Before that he was associated with the Nuclear Metals Corporation. He leaves his wife, and a daughter, Mrs. Joan McIntyre of Marblehead, Mass.

Welcome word from **Flossie Fogler Buckland** contains the news that she is now a fellow of the A.S.M.E.—the second of her sex ever to be so designated! Flossie says she has just completed a labor of love consisting of the translation of 116 German articles on the use of bee venom in the treatment of arthritis. She and Bruce have been in Europe this winter attending gas turbine meetings. Not content with these activities, Flossie has commenced writing a book on heat flow in rotating machinery. While in Paris, the Bucklands were hoping to get in touch with K.B. White.

**Oscar P. Young** has been elected President and Director of Lytron, Inc., Woburn, Mass., manufacturers of heat exchangers, liquid and gas heaters and precision high temperature valves. Oscar was formerly vice-president and engineering manager of a foreign subsidiary of Ebasco Services, Inc. He has been associated with Electric Bond and Share for many years.

**Vaughn Byron's** present address is 12 Linden Ave., Mercersburg, Pa. . . . **Andrew Johnson** joins the swelling ranks of 1920 men in Florida. His address is 5207 Hidden Harbor Drive, Sarasota. . . . **Adolph Spiehler** has moved from Evanston to Wilmette, Ill., address 3110 Sprucewood. We'd sure like to hear from you, Dode. . . . **Raymond Coward** is in Red Bluff, Calif. . . . Your Secretary and his Amy spent the month of March in Terra Linda, a suburb of San Francisco, to be near their daughter and grandchildren who live in San Rafael, and to enjoy the spring which abounds there in March, unlike New England.—**Harold Bugbee**, Secretary, 21 Everell Road, Winchester, Mass. 01890.

## '21

In your preparation for one month from now, we assume that you have already sent in your registration for the reunion as well as for your Cambridge accommodations and Alumni Day tickets; that you have planned your itinerary and made the necessary arrangements to arrive in Groton by rail, air, road or boat and all that remains is to pack up and go. While you're checking these items and related details of your trip, won't you please look in your "M.I.T. '21" file, or wherever you keep documents on Class activities, and make certain you have completed the questionnaire form (sent to you early last December) and have mailed it to your Secretary at the address at the end of these notes. Even if you can't make the trip back this June, please check that you did return this important questionnaire. The data it contains are invaluable to us

in maintaining Class records and assuring you of the continuance of this column. It's only a small favor we ask,—take the few minutes necessary and send in the sheet now. If you have already done so, we thank you most sincerely for your kindness. If you haven't, please do it right away and chalk up your good turn for the day. A post card to your Secretary will bring an extra form, if you can't locate yours. Thanks a million for your help!

A recent national news release says the House of Representatives has passed and sent to the U.S. Senate a bill authorizing \$40 million for a national air and space museum in Washington, to be operated by the Smithsonian Institution. We immediately wrote to **S. Paul Johnston**, Director of the National Air Museum, Smithsonian Institution, Washington, D.C. 20460, and are glad to present the following excerpts from his prompt reply: "Your newspaper information is correct. I am sending you bulletins which give some idea of the size, location and purposes of the new museum. This project has been under way for a good many years and hopefully is about to come to a head. Our bill did pass the House and we hope to get Senate action shortly. This particular piece of legislation, however, is the authorizing legislation only and does not carry any construction money with it. We have had about \$2 million dollars worth of planning available to us in the past two years, for which we now have in hand the complete architectural and engineering work for the new building. It has been approved by the National Capital Planning Commission and by the Fine Arts Commission and, as soon as the authorizing legislation is passed, we will go to the Bureau of the Budget for the initial construction money. The project will require about five years from the date of ground breaking to final completion. As for myself, I have been director of the National Air Museum since my retirement from the administration of the American Institute of Aeronautics and Astronautics in New York at the end of August, 1964. If I live long enough, I hope to continue as director of this new project at least through its planning and completion. Ray Brooks' ('17) old Spad is in fine shape and on display in one of our older buildings here. Our plans for the late spring are not yet formulated, so it is still uncertain whether we will be able to participate in the reunion in June, but we shall keep you advised. Kindest personal regards." The illustrated bulletins, prepared by Paul, show display space designed for items ranging from sub-miniature instruments to complete aircraft and rockets. There will be 314,000 square feet of exhibition area in a building about 800 by 250 feet and 100 feet high, which is compatible in outer appearance with the adjacent older buildings on the Mall in Washington. The design also provides for extensive library, documentary, research and administrative facilities, an auditorium, cafeteria and underground parking for 1200 cars of the anticipated annual five million visitors, estimated to reach one-day peaks of 50,000. Founded in 1846, the Smithsonian's association with space dates back to an 1861 recommenda-



tion to President Lincoln for the use of balloons in the Civil War. The National Air Museum was established in 1946 with 3500 aeronautical items amassed by the Smithsonian in the previous 71 years. The new site was chosen in 1958; planning started in 1963. Besides Paul, other M.I.T. men associated with the Smithsonian are: Crawford H. Greenewalt, '22, and Jerome C. Hunsaker, '12, both regents; and General James H. Doolittle, '24, advisory board for the National Space Museum. Thanks for your considerable help, Paul.

By the time this issue arrives in your mailbox, **Edwin T. Steffian**, our Assistant Class Secretary, should be up and around as good as new. Early in February, Ted was driving off of Route 128 on a snowy morning, when an abandoned car, headed into an eight-foot snowbank, loomed up around a curve in his lane. Fortunately, he was wearing a seat belt, which limited his injuries to a dislocated hip, cuts and bruises. At this writing, he is out of traction and at home—46 Lakeview Ave., Cambridge, Mass. 02138. We have talked to him several times and he assures us he is well on the way back to normal and will take on all comers in June. Write Ted a note and tell him that, after reading of the experiences of both of your Secretaries, you, too, have installed seat belts all around in your car and refuse to drive it unless all passengers have them securely in place! . . . **If Herman F. Finch** will return the questionnaire, we'll be able to confirm that he has retired as supervising structural engineer for the California Division of Architecture and has moved from Sacramento to a new home at 2819 Pierce St., San Francisco, Calif. 94123. . . . **Herman S. Klier** says he lives at 170 East 71st St., New York, N.Y. 10021, and, in the absence of his questionnaire, we assume he is still vice-president of the New York shipping firm of Fearnley and Eger, Inc. . . . **Fred W. Marlow** gives his new business address, but failed to return the questionnaire. He is a partner of the Marlow Co., 6607 West 80th St., Los Angeles, Calif. 90045. . . . No questionnaire was received from **Norton G. Raymond**, who reports a new home address at 11776 East Shore Rd., Whitmore Lake, Mich. 48189. No doubt, this indicates his retirement from engineering supervision activities at the Ex-Cell-O Corporation of Detroit. . . . Despite the lack of his questionnaire, it can be reported that **Dr. Manuel Sandoval Vallarta** has a new home address: Fujiyama 745, Mexico 20, D.F., Mexico. Val is a professor of physics, an internationally known physicist and one of the three members of Mexico's nuclear energy commission. . . . **Churchill K. Stiff** also neglected to return the questionnaire but did give his mail address as P.O. Box 1072, Norton, Mass. 02766. He is the assistant director of inspection in the engineering department of the Factory Mutual Insurance Co. . . . A research chemist at the Washington University Medical School, St. Louis, Mo., Mrs. **Alice Bronfenbrenner** reported a new home address at 245 Union Blvd., St. Louis, Mo. 63108, but, without the data requested on the questionnaire form, no further details are available. . . . **Ed-**

**win L. Rose** was traced through a brother Hexalpha in his move from Florida to 397 North Lima St., Sierra Madre, Calif. 91024, but, since he didn't comply with the request for information, his activities aren't known. . . . **Howard L. Ross** has presumably retired from Chartmakers, Inc., of New York City. He lives at 176 East 77th St., New York, N.Y. 10021. How about returning that questionnaire pronto, Howard?

A note from **Edna and Philip T. Coffin**, 344 Jefferson Dr., Pittsburgh, Pa. 15228, remarks: "We got back from a tour of Europe without seeing the Shaws! Didn't think it was possible. Have signed up for the June blowout. Regards to you both." . . . **Ruth and Ralph S. Wetsten** of 24 Forest Dr., Springfield, N.J. 07081, sent a cordial note: "Hope you are enjoying retirement and your new location. As always, we appreciate the excellent way you furnish the Class notes." . . . **Maida and Edouard N. Dubé** wrote from their home at 216 Woburn St., Reading, Mass. 01867, to wish us well and to bring us up to date on their family news. They say, in part: "Having arrived at that happy stage of life when grand-children are an important part of the family tree, it seems pertinent to report on them and their parents. As for us, we do not lack things to do, but rather the time in which to do them. Ed still maintains his consulting engineering office at 120 Tremont St., Boston, Mass. 02108, and Maida is active in mental health work, both in Reading and at the Danvers Hospital. Daughter Lucienne and her husband, Harold Jones, are still located in Falmouth Foreside, Maine, where they live on the shore of Casco Bay with our only granddaughter, Becky, aged 13, Perry, 12, and Adam, who is 9. Harold is with Sun Oil Company and is also the chief of the Falmouth Fire Department. Our son Paul is on the faculty of Northeastern University and is coordinator of the cooperative branch of the university. He and Jeanne have four sons, Gregory, a Boy Scout, who is 12, Christopher, 11, Stephen, 9, and Michael, 3,—and are hoping for the arrival of a daughter this spring. Daughter Anne Louise and her husband, Paul McDonald, are now installed in a lovely old house, built in 1750, in Sheffield, Mass., where Paul is superintendent of the Southern Berkshire School District, comprising Egremont, Alford, Monterey, New Marlborough and Sheffield. Their big news is that, after a year's wait, their adopted son, Eric Jordan McDonald, arrived at the age of four months. Our youngest daughter, Caroline, and her husband, Dr. Bruce Bochman, have a son, Andrew, 3, who is looking forward to a new brother or sister. The Bochmans live in Lexington. Bruce's medical practice is mostly in neighboring Waltham and he is on the staff of the hospital in Jamaica Plain. Fortunately, all three generations are enjoying good health, for which we are very grateful." With four children and eleven grandchildren in the Dubé family just about now, the vital statistics of the Coffin, Dean, Flaherty, Jackson, Miller, Sherry and Wilson families are being challenged! Have we left out any couples who rightfully belong in this list?

From the brand new Pompano Beach Motor Lodge on the beach came a welcome post card from **Alex and Munroe C. Hawes**, who are residents of 320 Boston Blvd., Sea Girt, N.J. 08750. Writes Munroe: "Had a fine game of golf with our classmate, **Bob Waterman**, yesterday at the Country Club of Florida at Delray Beach. (Bob makes his winter home at 920 Hibiscus Lane, Delray Beach, Fla. 33444—Cac.) He won't get to our 45th, since his son, James, graduates from Emory University at the same time. It's a warm 80° here. Regards." . . . **Raymond A. Snow**, District Manager of the Carolina Power and Light Company, who lives at 818 Bryan St., Raleigh, N.C. 27605, represented M.I.T. in his capacity as Honorary Secretary of the Institute at the inauguration of Dr. James Edward Cheek as president of Shaw University, founded in Raleigh in 1865. Please return that questionnaire, Ray! . . . **Franklin T. Flaherty** of Lincoln Rd., R.D. 12, Lincoln, Mass. 07113, is in his sixth year of private patent law practice, after his retirement as patent counsel for DuPont in Wilmington, Del. He and Augusta have five children and fourteen grandchildren. . . . **Dorothy and Joseph Wenick**, 37 Cedars Rd., Caldwell, N.J. 07006, are spending this month on a trip to see their younger son, Martin, who is second secretary and vice consul of the American Embassy in Prague, Czechoslovakia. They flew to Switzerland, where Martin met them and drove the rest of the way. Advance plans are for them to return in time for attendance at the Groton and Cambridge celebrations in June. . . . A note from **Irvinia and Ralph D. Cooper** advises of their move to a new home address, as of the first of this month. They can now be reached at 6850 South Shore Dr., Chicago, Ill. 60649. Ralph is the general manager and executive engineer of the Produce Terminal Corporation, Chicago, and the vice-chairman of the Chicago section of the American Society of Mechanical Engineers. Their daughter, Elizabeth, a Northwestern graduate, is married to a surgeon, Dr. Howard J. Eddy, Jr., and they make their home in Garden City, N.Y., with their two sons. . . . **Ralph H. Wallace**, River Meadow Lane, York, Maine 03909, retired as general traffic engineer of the New England Telephone and Telegraph Company in 1960. He and Eunice have two sons, Frederic, who received his bachelor's degree from Harvard, master's from Caltech and Ph.D. from Tufts; and Robert, a graduate of Worcester Tech. There are four grandchildren.

**Sumner Hayward** underwent surgery in January and March of this year and we are happy to report that, as these notes are in preparation, we have talked to Betty and to him by phone and he is recuperating rapidly. We are looking forward to seeing Betty and Sumner at the next meeting of the M.I.T. Club of Northern New Jersey, just before their long-planned trip this month to England and Scotland. They will return to their home, 224 Richards Rd., Ridgewood, N.J. 07450, in time to attend both June events. Betty is the author of a sizeable book on the McCoy family and we had sent her a recent clipping on the Hatfield-McCoy hostilities,



which evoked her most interesting reply, from which the following are excerpts: "I want to thank you for the clipping. Yes, I do know about that feud, having had to explain many times that my branch of the McCoy family is the peaceful one. A remote cousin told me that he once visited in the part of West Virginia where the supposedly long-settled feud took place. He and the man traveling with him were at a dinner with some of the mountain families. Thinking to bring up a topic of local interest, he said something in jest about the Hatfields and McCoy's. Two things happened simultaneously—a charged silence and a vicious kick on his shin. In time, the silence was broken and he rather thought his ankle was, too. Later, when he and his companion were alone, he asked, 'Why did you give me that nasty kick?' The answer was: 'Because the feud is no joking matter here, even if it was officially over some 50 years ago. If I hadn't hurt you enough to make you shut up, one of the men at the table with us would have politely asked you to walk down to the branch with him. He wouldn't have touched you while you were a guest under his roof, but whether or not you'd have come back from that walk is anybody's guess.' By the way, I happen to know of two churches, one in Texas, the other in Ohio, each with a Hatfield and a McCoy on the official board. Too bad Ripley never heard about them. Sumner and I send our best to both of you. Sincerely, Mary Elizabeth McCoy (pax vobiscum) Hayward." There followed a later note on a genuinely antique post card, picturing "Institute of Technology and Natural History Building, Boston, Mass.," circa 1908, with open trolley cars and no automobiles on Boylston Street. It will go into our family collection as a gift, so Betty tells us, from none other than our own **Horace B. Tuttle!** Thanks all around!

That man of iron, **Saul M. Silverstein**, is off on his 20th foreign trip since 1952, leaving early in April and, this time, in the more conventional eastern direction. Accompanied by Rigi on part of the trip, he will also devote a portion of the two months to the work of C.I.O.S. in certain areas, including Istanbul, Belgrade, Budapest, Prague, Warsaw, Moscow, Leningrad and Helsinki. Other points of call include Lisbon, Athens, Stockholm, Malmö, Copenhagen, Amsterdam, Paris, Brussels, Ghent, Frankfurt, Stuttgart and London. This active couple plan to be back in the States in ample time to join '21 at Groton and Cambridge. With all the effort expended by its dynamic president, Rogers Corporation has announced a record-breaking year in many aspects of its advances in the domestic field as well as in its expanding foreign licensees and associates. Write Saul in care of the company at Rogers, Conn. 06263, for a copy of the interesting 1965 report before he takes off again in the fall on another scheduled globe-girdling safari! . . . **Ralph M. Shaw** answered our query about an unheralded change in his address, recorded in error at Cambridge, with the statement that he still made his home at 608 Riverbank, Beverly, N.J. 08010, and his Pedrick Tool and Machine

Co. is still in Philadelphia. Rufe says, in part: "Wasn't it Mark Twain who said of the notice of his death that it was greatly exaggerated? I am still a resident of the sovereign state of New Jersey, the second state to ratify the Constitution! I am about ready to take off on my annual peregrination to sunny climes—not that New Jersey hasn't been as good a winter resort as anything in Florida this year. But there is no ultraviolet light in the sky and I want a good, resounding tan to show to my brothers at the reunion and make them green with envy. We plan to venture forth this January weekend, to be gone until April 1. Perchance I may have to lay over a day or two. Ain't it tough to be the only electrical engineer in the company? A misguided soul kicked in for a Model MA-5 Pedrick Bender, one of those using the famous 'Shaw's Folly' electrical hookup and I am the only man who can design it, connect it up and make it work. The first one I hooked up brought hoots of derision from the entire staff. They joined forces and bet me a box of cigars it wouldn't work. Came the final connection and I put it on the line. The chagrin of my associates was profound. They anted up the spondulicks but I demanded the cigars and they had to send a deputation out to buy them. They have not wagered since, but they are still skeptical. But this is at a bad time. Not only am I headed for southern climes, but I have sworn off the filthy weed on account of a chest cold—and 'Shaw's Folly' cannot be created without tobacco. Sometimes I wonder if it can be created at all. So I am back on my pipe, the design is on the drawing board and all I have to do is make it work!" It must have, for Rufe followed this up with another note, written at the Sandy Lane Hotel, Barbados, and franked with gorgeous "Royal Visit" postage stamps. He taunts us with: "We are sojourning in this tropical paradise and dreaming of the zero weather and unfathomable snow drifts that we hope you are having. Have fun! People spend money to go to the Green or White Mountains to get it and you get it for nothing! Here we sit on the shores of the Caribbean, where the water temperature is 80 and the air is 85. I have a deep tan. Above us wave a grove of manchineel trees, the poison tree of South America, whose sap will burn you; if you eat its apples, you will have a one-way trip to the cemetery. Sugar is the chief Barbados crop, but the sugar mills were built when Columbus sailed and look it. The beaches are crawling with M.I.T. alumni and if you don't have a degree from that institution you don't rate shucks. I have signed up for the M.I.T. Fiesta in Mexico; will probably be the lone '21er in a sea of '24ites. Have not seen a classmate since meeting **George Chutter** a year ago. Phil Coffin is supposed to be in Naples, Fla., but I have not run him to earth as yet. Tell Maxine 'hello' for me. Keep the snow shovel busy; it's more pleasant when you think how good it is for the soil. I love snow—in Brielle, N.J., when I am in the Barbados! Hasta la vista. Devotedly, Rufe."

**Ray St. Laurent** writes that he saw **Everett J. Wilson** in Manchester, Conn., on Ev's visit to a son who is with Pratt and

Whitney. Ev retired last year as general superintendent and gas engineer of the gas division, New England Electric System. He now lives in a house built around 1800, near the center of Temple, N.H., on a 40-acre wooded lot. He is an avid golfer. Ev and Sarah have another son, with the Lawrence Gas Company, and a daughter, who is married to a biochemist. All three children are married and there are nine grandchildren. Ev reported a trip across the U.S. in 1964, which was extended with a visit to Honolulu. His questionnaire gives his mail address as P.O. Box L37, Temple, N.H. 03084. . . . At a recent meeting of the M.I.T. Club of Northern New Jersey, attended by **Joe Wenick** and your Secretary, we had the pleasure of meeting Harold V. Sturtevant, '18, and his wife. A radio officer and instructor in World War I, he received his degree with our Class and asked to be remembered to his '21 friends. . . . From 35 Spruce St., Westerly, R.I. 02891, came greetings from Emma and **Leon A. Lloyd** which feature a picture of their three southern granddaughters, children of their daughter, Edith, and Dr. Alfred H. Clark of Atlanta, Ga. Barbara's husband, Sam Hayes, received his doctorate at the Harvard Business School; the couple live in New York City, where Sam teaches at the Columbia Graduate School of Business. Son Dave completed six months of study at the Bettis nuclear laboratory, Pittsburgh, and a month in Idaho at the atomic energy site. He and his wife, Barbara, are back in Arlington, Va., where he is a member of the Naval Reactors staff and she is an economist with the Bureau of Mines. Al has become interested in the Westerly Camera Club and both he and Emma continue their numerous church and community activities.

**Oliver L. Bardes**, President of the Bardes Corp., manufacturers and engineers, 4730 Madison Rd., Cincinnati, Ohio 45227, wrote a welcome letter, saying, in part: "Enclosed is my reservation. I telephoned Saul Silverstein, after reading another of your fine reviews, to get information on the trip around the world that my daughter and I will make, beginning April 26. Your article on Zambry Giddens was good, though sad. Zambry and I did our thesis on foundries together. My wife was with Janet the last few days to help her and I, of course, attended the funeral. Looking forward to seeing you. Ollie." Ollie has a home at 555 Island Drive, Palm Beach, Fla., where he manages to get in a little golf between the heavy demands of the various companies of the Bardes group. . . . Congratulations to Margaret and **William J. Sherry** on the birth of their ninth grandchild, Margaret Mary Erker, to their daughter, Anne, in St. Louis on February 25, 1966. The Sherry family now comprises eight children, three of whom are married, and nine grandchildren. Excerpts from a letter from Bill read: "Margaret flew up to St. Louis to bring back 15-month-old Rodger Erker, Jr., until Anne and her husband get acquainted with the new arrival. I won't be at the reunion at the Griswold, due to a conflict, but I will be in Cambridge for Alumni Day. Margaret and the family join me in extending to you both our affection-

ate regards and best wishes." Bill heads the Sherry Petroleum Corp., 1801 First National Bldg., Tulsa, Okla. 74103. We have belatedly received a clipping, announcing that the Metropolitan St. Louis Chapter of the Railway Business Women's Association honored their bosses with a dinner at the Missouri Athletic Club, at which the guest speaker was our own **John W. Barriger**, who was specially honored on his 50-year career in railroad-ing. . . . Thanks to **Frederick W. Adams**, 269 S. Prospect Ave., Clarendon Hills, Ill. 60514, for his letter reading: "You will be interested to know that on March 1, 1966, I retired as technical advisor on corporate research and development of the Continental Can Company, Inc., Chicago, Ill. I am entering private practice as a chemical engineering consultant in the management and technical aspects of industrial research. Catherine and I are hoping that we may be able to attend the '21 reunion this June but, because of the uncertainty of what other commitments I may have at that time, we cannot now make definite plans. Best regards to our classmates." . . . A letter from **Betty and Dugald C. Jackson, Jr.**, tells of their arrival, following a long world-circling trip, at their home—Tetrastremma, Harmony Hills, RFD 1, Havre de Grace, Md. 21078. Dug says, in part: "Having finally arrived in Maryland just after one snow storm but in time to dig out after three more within 10 days, I have finally filled in the '21 questionnaire which was forwarded to me in Florida, on our way back. Driving north, we stopped for lunch and a brief visit with Katherine and **Mahlon A. Hartley** in Staunton, Va. He has written to **Harry M. Witherow**, with whom he roomed at Technology, to urge him to attend. (Mahlon and Harry: Please return those questionnaires!—Cac.) I'll also try to write those of the Course VI-A group whose addresses I have. Regards to you both from us two." Hope Dug asks Ed Chilcott, Ted Rose, Royal Wood, David Woodbury and the other loyal Hexalphas who have not already done so, to hurry those completed questionnaires back to your Secretary.

We are deeply shocked to read in the March issue of the "I.E.E.E. Spectrum" of the death on January 17, 1966, of **Carlton E. Tucker '18**, Professor Emeritus of the Department of Electrical Engineering and former executive officer of the department, which he served for 51 years. We have expressed to Mrs. Tucker sincere sympathy for his longtime friends and students in the Class of '21. We shall miss our annual visits to his office on Alumni Day.

Unfortunately, E.S.P. was not among the Technology courses in our days and we must, therefore, base the news appearing in these columns on your courtesy and cooperation in supplying us with clippings, letters, notes and, above all, those invaluable questionnaires which form our primary reference file and news source. If you could see the well-thumbed condition of those you have sent in previously and updated over the years, you'd understand how valuable they are to this editor. Also, you would immediately dig out this year's form, sent to you with the first

reunion mailing, complete it and mail it back right now to your Secretary. If you have done so, accept our blessings and ignore this appeal; if you haven't, it's not too late to send it in now or to ask us for another blank, if you can't locate the first one. Please do your little bit to help us a lot. Many thanks!—**Carole A. Clarke**, Secretary, 608 Union Lane, Brielle, New Jersey 08730; **Edwin T. Steffian**, Assistant Secretary, c/o Edwin Steffian and Associates, Inc., 19 Temple Place, Boston, Mass. 02111.

## '22

As he reported last month, your Secretary has donned his "Seven League Boots" and is off to "far away places with strange sounding names." This time it is to the land down under—Australia—where, if he wishes, he will be able to observe the mining of opals and the citizenry "waltzing Matilda." His communiques fill our minds with the places which we stay-at-homes will probably never see. It wouldn't surprise us at all if he went adventuring through the haunts of Captain Bly and Mr. Christian and the vast reaches of the South Pacific, not unlike "Adventures in Paradise" of television fame. We can be certain that even Robinson Crusoe's island now has a Hilton Hotel perched upon it, but we like to picture your Secretary and his charming Dorothy relaxing upon a white coral strand, watching a great silver moon glittering on the blue Pacific, or anchoring at some palm fringed atoll in this Never-Never land. Many people, including his Girl Friday, dream of taking these fabulous journeys someday but he is a doer not a dreamer and through his reports we also fly about the world, though we are earth bound would-be-travelers. It is an amazing world and a time in which to live! Your Secretary and his party left Buffalo on a zero, snowy, blustery Sunday and that same evening they enjoyed San Francisco and the beautiful, snowless Golden Gate.

Class Agent **Dale Spoor** reports receiving about 25 over-\$50 contributions to the Alumni Fund, including several who have not given for several years. The Class is going to do a superb job on the Alumni Fund this year. . . . **Parke Appel** and Madeline are engrossed in exciting preparations for their first trip to Europe. It looks as though "Seven League Boots" are standard equipment of the Class of '22. They will be leaving on May 20 to spend a few days in England and Scotland and from there will tour around the grand circle of Holland, Belgium, France, Switzerland and Austria. They will be away two months, which precludes their attendance at Alumni Day in June. They expect to attend the 45th next year, but we are sorry not to have them this year too. We hope their magic travel boots carry them wherever they wish to go in comfort and safety.

Another report has just arrived from your Secretary. They spent a few days in Honolulu where they enjoyed the per-

fect weather, the native music and dancing. He plans to teach all of you the Hula when he sees you in June. Then amid Alohas, they left on a nine and a half hour flight to Auckland. The harbor of this city extends all around it and a trip on the Hydrofoil, PT20 Manu-Wai to some neighboring islands at 32 knots gave them a panoramic view of this city on the other side of the world. In Wellington he had an interesting and informative meeting with **Norman Shelton**, Minister of Customs and Trade and then was off to see the high points of the city with its beautiful harbor and surrounding steep hills. The Hotel St. George is in the heart of the city, yet only 10 minutes from the airport. He reports that the cuisine is excellent. As they progress southward toward the ice of the Antarctic, the weather has become cooler. The temperature of flower-filled Christchurch is noticeably lower. However with gusto and daring your Secretary has explored the Tasman glacier below the peak of 12,000 foot Mt. Cook. He cannot go much further south. Either the road will automatically bring him back up the other side of the world, or he will find himself spearing walrus in the ice packs of the south pole.

We have several address changes: **Her-man P. Plaza**, Universidad Santa Maria, Casilla 132-V, Valparaiso, Chile; **Earl J. Young**, 23 Madison St., Bangor, Maine; **William J. Edmonds**, Box 2314, Route 2, Bainbridge Island, Wash. (from Scarsdale, N. Y.); **William G. Rapp**, 3 Washington Square, Larchmont, N. Y.; **James L. Truslow**, 5 Blenheim House, 180 Kings Row, London, England (from Essex, England); **Robert W. LeMare**, 46A Troy Drive, Springfield, N.J. Keep the notes coming in, so the activities of the Class can be reported more completely.—**Whitworth Ferguson**, Secretary, 333 Ellicott Street, Buffalo, N.Y.; **Oscar Horovitz**, Assistant Secretary, 33 Island Street, Boston 19, Mass.

## '23

In the absence of news clippings from Cambridge, as I prepare this early in March, you are urged to come out from your winter hibernation and inform your Secretary as to news of yourself and your classmates. . . . A highway is being planned which might pass through a large portion of M.I.T. property and a large portion of the Cambridge plant of the Polaroid Corporation. M.I.T. would lose about \$80,000,000 and vital experiments which have been going on for many years would be terminated. A public hearing was held recently at which, among others, M.I.T. and Polaroid stated their case. Your Secretary observed a picture in the newspapers of our Class President, **David W. Skinner**, Vice-president and general manager of Polaroid, going to bat for Polaroid, whose Cambridge plant would be practically ruined by such a highway. It shows how ridiculous the politicians can get. . . . The Jewish News for November 26, 1965, reports that **Dr. Julius A. Stratton**, President of M.I.T., was



awarded an honorary degree at an academic convocation held by the Jewish Theological Seminary. It was the first convocation ever held here by the seminary, which marked its 80th anniversary with the event. . . . Word has been received of the deaths of **Oswald T. Radcliffe** (no address given) on November 14, 1962, and **Charles A. Gelsinger**, 2914 Cedar Hill Road, Cuyohoga Falls, Ohio 44223, on February 17, but no details are available.—**Forrest F. Lange**, Secretary, 1196 Woodbury Ave., Portsmouth, N.H. 03801; **Bertrand A. McKittrick**, Assistant Secretary, 78 Fletcher St., Lowell, Mass. 01852.

## '24

Latest report on the protracted cruise of the **Carroll Dunns** comes from Tahiti, "Perle de Mero du Sud." Although the card was posted on board, we still don't know the name of the ship. The cancellation stamp reads MS BE . . . and then it must have run out of ink. . . . On a shorter trip and in radically different surroundings were the **Schoolers**. They were skiing in Waterville Valley, N.H., in February with their daughter and son-in-law. It's not clear who was getting the exercise, for the message read, "I am still getting a big thrill down the slopes" and then it was signed "Nat & Freda." . . . **Frank Shaw** has been in the greeting card business with Rust Craft since graduation, and has held a variety of posts, most recently as assistant to the president. All of his jobs entailed a considerable amount of traveling. Now it appears that he can enjoy a more settled existence at last. In mid-March he became manager of the House of Rust Craft which opened in Boston's big new Prudential Center. The news release detailed some of Frank's other activities which were new to us: member of the Wellesley Town Advisory Committee, President of the Wellesley Club, Chairman of the United Community Fund, Chairman of the Standing Committee of the Unitarian Church in Wellesley, and permanent honorary director of the Rust Craft Quarter Century Club. One glaring omission: 1924 Class Agent for the Alumni Fund.

Looks like we have another retirement to report. For many years **Osborne H. Davol** has been in Niagara Falls with Union Carbide. Now comes an address change to Portsmouth, R.I., and since Dave came from Providence originally it seems logical to assume this is another home-coming. . . . When **Cy Duevel** retired in February, he and Mary immediately headed south for Florida. And evidently he told his secretary to clear out his files. As a consequence your Secretary was the recipient of a weighty box full of folders with everything under the sun pertaining to our last two reunions—letters, lists, programs, notes on the back of old envelopes. If our President will only appoint a 45th reunion chairman soon, I'll be glad to ship the whole batch on to him. How about Cy Duevel? I could add a few pounds more from my

own files, which need cleaning out badly. . . . A low month for news, but at least there was no occasion to report more deaths.—**Henry B. Kane**, Secretary, M.I.T. Room E19-439, Cambridge, Mass. 02139.

## '25

Your Secretary found a very pleasant way to learn about classmates, and that is by visiting them in their natural habitat. Returning from meetings at Tucson, Ariz., stops were made at Rolla, Mo., and Erie, Penn. At Rolla, there was an opportunity to visit for a while with Mrs. Horace T. Mann, the widow of Dr. Mann who received his doctor's degree at M.I.T. with the Class of 1925. Dr. Mann was on the faculty at M.I.T. from 1925 to the closing of the Mining Department in 1940, at which time he returned to the Missouri School of Mines at Rolla, where he died a short time later. Mrs. Mann has continued to live in Rolla, teaching for an extended period, and later going into the real estate business, where she is doing quite well and seems to be very happy.

In Erie, Pa., were "Tom" Price and his wife Sue; and you have to be their guest to realize just how pleasant an experience that can be! Tom is, of course, vice-president of the Hammermill Paper Company, but this gives you only one side of his very many activities; and his interest in civic affairs over the years that he has been in Erie cannot be done justice in this column. Looking back at the information he provided Will Gardiner in the preparation of material for the Fortieth Reunion, Tom very modestly mentioned only his association with Hammermill. The day spent with Tom in viewing the city and its points of interest, meeting with many people in many walks of life, and enjoying a quiet evening at his beautiful home, brought out the fact that Tom's interests are multiple and varied. He arranged a cocktail hour with several M.I.T. Alumni, and had meetings with people from Hammermill and from Gannon College, a small but growing institution located in the heart of the city of Erie. You can be sure it was a most enjoyable 24 hours!

Chick Kane has been kind enough to pass on some information regarding **Roger Ward**, about whom the Class has had little information during the past 20-odd years. Roger's address—Trailer Haven Station, Melbourne, Florida, 32901—might lead one to the conclusion that he has now retired. He states that he tried retiring two or three times in the past but found it did not work. He indicates that his home is actually up on Merritt Island, in the shadow of the various missile complexes. The Trailer Haven address results from his taking on the responsibilities of promoting the Industrial Air Center in Melbourne, close to the John F. Kennedy Memorial Airport. He refers to this as one of the few industrial parks with the true "fly-in" concept. . . . A final note indicates that **Alex C. Brown** of Emery Industries, Inc., of Cincinnati,

Ohio, was a recent speaker at a meeting of the Automatic Control Chapter of the IEEE, Dayton Section. The subject of his talk was "The Process Element Concept in Chemical Process Control."—**F. L. Foster**, Secretary, Room E19-702, M.I.T., Cambridge, Mass. 02139

## '26

As we spread the '26 folder of clippings, letters and news releases on the floor around the living room chair we find a distracting influence. There must have been a storm out at sea because ocean waves are rolling in and breaking on the rocks below with regularity. We hear them break about every seven seconds and it has a relaxing effect. Even though we have just finished breakfast it's a little difficult to keep one's head from nodding to synchronize with the cycle of the breaking waves. So if the notes lapse you will know I have gone to sleep in my chair. Knowing this to be the last issue of class notes before our 40th reunion I was prompted to open my reunion folder and the first thing I found was a nicely printed bulletin of our fifth at the Mayflower Inn, Manomet, Mass. One of the more interesting bits of instruction is the first item which states, "Fall River Line Boat leaves New York at 5:30 D.S.T. loaded to the gunnels with '26 men. For information write D. A. Shepard, 19 Pingry Place, Elizabeth, N. J. Make reservations early. If 25 or more come by boat a fare-and-one-half round-trip rate will be available." Another item states that the entire cost of the weekend was \$14.50 but even

## 40th Reunion

more interesting is the list of 99 classmates who had signed up indicating that in 1931 they had \$14.50! Most interesting of all is the list of names which is not too much different from the list of those who will be here for our 40th. To list just a few of the names on the list, Ash, Bassett, Buckley, Brooks, Cole, Criswell, Dawes, Dean, Drain, Edmonds, Eddy, Forrester, Goldberg, Hamblet, Hemeon, Humphrey, Humphreville, Killian, Latham, Leness, Levis, Lowell, Lobo, Lord, McGrew, Mangelsdorf, Meehan, McCulloch, Pough, Richardson, (3 Richardsons), Shepard, Spear, Staples, Underwood, Wardner. This is just a sampling of the names, but the interesting thing about the list is that of the 99 most of them are still around! This proves that it must be healthy to attend class reunions. Five years ago we had 78 classmates plus 23 wives and many of the same names are on this list. Some more of those that were here 5 years ago as well as 35 years ago are Clarke, duPont, Gabrenas, Green, Greer, Head, Heyser, Hopkins, Howard, Johnson (both!), Larkin, Olander, Rooney. Again this is just a spotting of the list but if these men were at the 5th and 35th too we can assure you they will be at the 40th. There are many other regulars and we are looking forward to seeing the



new list. Since the notes must be written way in advance, the reunion mailings are actually just starting as I write this issue. You will have more details in the mail long before you read this but I will include some of the features regardless of duplication. For the first time in 40 years wives are invited to the reunion. Last time mention was made that they could come if they wished and even with such a back handed invitation 23 showed up! With the full fledged invitation this year we expect them all to come and coeds too! Transportation will be available for any who need it and **Bob Dawes** will arrange it; if you have a problem phone or write him at Hudson, Mass. Dormitory rooms will be available in Cambridge for those returning for Alumni Day activities. The same old team of **Levis** and **Meehan** are in charge of sports activities which probably will be somewhat less vigorous than that famous 5th. Again the time lag in Class Notes prevents giving you a meaningful report on our class gift progress. At this writing we are well on our way but it becomes evident that many of you will have to be asked to take another look at things and tell **Austin Kelly** what you are going to be able to do next year and the year after in order to be counted now. With an objective such as no class has ever had before I have no doubt that we will achieve it but I also have no doubt that it will require a lot of last minute hard work for **Austin Kelly's** committee to get there. Remember—don't wait for **Austin** or his cohorts to contact you personally. **Austin's** address is 60 East 42nd St., New York City; his phone number is 212-OX 7-5423. Now a formal announcement from the Class Secretary. After April 1 Pigeon Cove will be home; we are moving down lock stock and barrel. For the next few years I'll be a year-round commuter to Boston. Therefore, we are with this issue changing our sign off address and our cheerio is now **George Warren Smith**, Pigeon Cove, Mass.

# '27

I regret to advise of the death of three of our classmates, word of which has been received since the last notes. **William Hart Nichols** died February 27. He came to Tech from Exeter and received a bachelor degree in Course XV. His life was very active in the business field but he was also a leader of civic activities, and engineering societies. He was a director of the Newton-Waltham Bank, at one time president of the Waltham Chamber of Commerce, and a member of the corporation of Northeastern University. Antique autos and hunting were his hobbies. After graduation **Hart** went with **Terry Steam Turbine** in Hartford but soon was working for the **W. H. Nichols Company** and became Treasurer and Director in 1947. His home was at 19 Pelham Road, Weston. . . . **Edmund I. Karp** died on October 19 of last year. He came from Lawrence, Mass., as a freshman in Course I and secured his bachelor degree. He

worked in Lawrence until about 1945 and then moved to Brooklyn to become a civil engineer in the office of the Borough President of Manhattan, becoming a senior engineer in 1960. He moved his home to 7 Park Lane, Nanuet, N.Y., only last year. . . . **Colonel William F. Sadtler** died August 14, 1965. His home was at 3722 Albemarle St. N.W., Washington, D.C. **Colonel Sadtler** came to M.I.T. from Johns Hopkins and West Point and secured his masters degree in 1926, and to our knowledge his career was totally devoted to military service. In World War II, he received the Legion of Merit and Commendation, then served in occupied Japan. His field was ordnance and he was a specialist in motor transport.

**Bert Houghton** lost his wife **Helene** early last year and has moved to 1952 Vista Del Mar, Ventura, Calif., near his daughter and her family. He says he has given up teaching "at least for the time being." . . . **Art Connell** sent on a clipping of **Les Woolfenden's** promotion (see last month's notes) and reports a new address, 225 Franklin St., in one of Boston's recently-built tower buildings. **Art** is a vice-president of Stone & Webster. . . . **Ethel Woolfenden** sent me a "confidential" note of **Les'** new job. Certainly wish more wives would do this for their modest husbands. The **Woolfenden** home, says **Ethel**, is now a way station, as **Les** flies between Texas and New York. They were in Jamaica in October last. . . . **Alan Beattie** has moved from Fairlawn, N.J., to Parker Hill Road, Killingworth, Conn. 06417. I don't know what's involved in the move but would like to. . . . The same goes for **Edgar Cahill** who moved from St. Louis to Evansville, Ind., 10 years ago and now has moved back to St. Louis, 4399 McPherson Ave. The last word we had was that **Ed** was with **Skelly Oil**. . . . **Dr. John P. Vinti** is now with the mathematics department of North Carolina State University at Raleigh. He was formerly with the Bureau of Standards—mathematical physics section.

"One of the poorest correspondents around" is the way that **Bud Gillies** describes himself, just because he still had a letter from me dated 1961 in his unanswered file. At least he did answer it, and has provided the following on his activities: "Have been a partner in the firm of Jones and Gillies since 1946. My partner, **Thomas W. Jones**, is an Annapolis graduate and an aviator. He maintains our office in Washington. In this work I have been involved with many firms in the aerospace world, in most cases for a period of from one to five years. Since 1950, director and member of the executive committee of **Marquardt Corporation**; chairman of **Spectral Dynamics Corporation** of San Diego, manufacturers of vibration analysis equipment, which we organized in 1961 for an electronics engineer who had developed a tracking filter wave analyzer; president and director of **California Minerals Corporation** (asbestos mines); now working on a consulting basis with four other firms." For these and other good reasons **Bud** has been in **Who's Who** since 1954. His current airplane is a **Beech Baron**. Address, **Rancho Santa Fe, Calif., Box 625**.

I fully expected to catch up with **Tom Russell** when I was in Naples, Fla., last month, but he was away for a few weeks. Catch you next time, **Tom**. . . . I did run into **Frank Kurtz**, class of '22, in **Delray Beach** where he is retired. It just so happened that **Frank** had scheduled a cocktail party for his visiting and local M.I.T. friends. A large number in this category were there, including a fellow-class secretary, **Gene Smoley**, of '19. I was the junior member of the gathering and enjoyed it.—**Joseph S. Harris**, Secretary, **Masons Island, Mystic, Conn. 06355**

# '28

One of the nation's top engineering awards, Fellowship in the Institute of Electrical and Electronics Engineers, has been awarded to two Raytheon Company officials, one our own **Bill Hall** of Lexington. The Fellow award is given annually to those making outstanding contributions to their fields. **Bill** has been with Raytheon 24 years; and as consulting scientist in the division's Surface Radar and Navigation Operation, he is recognized nationally as a leading authority in the radar field and has been awarded the Navy Certificate of Commendation for his engineering contributions. **Bill's** recognition was for "development of radar through fundamental calculation and prediction of performance." He has authored numerous papers and holds about 25 patents in fields of sound measurements, infrared, instrument landing and radar. He was the first person to be honored by Raytheon with the "consulting scientist" title.

A notice from the Alumni office tells us that **Bill McClintic** now lives in the Cherry Plaza Hotel, Orlando, Fla. 32801. **Jim Donovan** recently sent us a letter that **Bill** mailed to him last November. To quote a few paragraphs: "You probably know that living down here after being in New York City so long is quite an adjustment to make. Government work is entirely different from what I had been doing with General Cable. Unfortunately with this new job, I will not have the time to devote much of my energy to M.I.T. affairs. I certainly will miss the extra work, which was always a pleasure. The weather was hot and humid when I arrived here in September, with a lot of rain. Now it has been delightful, and I am enjoying it very much."

Another letter **Jim Donovan** sent along for class notes is from **John G. Houpis**, 12 Zinonos St., Ano Neon Halandri, Athens, Greece, and is dated December 1, 1965. It starts off with: "Dear **Jim**: Surprised? Yes, I am living in Athens now. I came here three months ago, soon after I retired from the Government service. I was at Fort Monmouth, as you know, for 16 years, working for the U. S. Army Electronics Laboratory as an Electronic's Engineer. Before that, I was in the Naval service for eight years and served as an electronics officer with the rank of full Commander. Yes, **Jim**, I am now 65 years old! How time flies! It

seems like yesterday when I was spending the night oil over calculus! I am old and gray but full of life yet. I enjoy the best of health. The climate here is very good. The temperature during the day reaches 75°F right now and goes down to 50°-55° at night. The winter here is in February and March only and is very mild. I came here with my youngest son Basil, age 15, and my wife Angeline, who is a native of Greece, as you know, from Corinth. My oldest son, George, age 22, is studying law at Boston College. I hope I can induce my youngest son to attend our Alma Mater.

"Life here in Athens is no different than that of a big city in the states. The only difference is the language and the money. If you have enough 'greenbacks'—and by the way, they take them here—you can buy anything from soup to nuts! Little expensive, but they are available. I have reference to imported items. And if you look for or want entertainment, there is plenty of that too. One can have a choice of night clubs (called 'Tavernas' here), theatres, concerts, socials, etc. All one needs is the 'gelt'—greenbacks—and the time, of which I have lot. I do lots of reading and writing, work in the garden, do little travelling and I still have lots of time left over. It's very difficult to find work here. A "foreigner" here has no chance for work—a little something to pass time—unless he works for or represents an American firm. This kind of job is difficult to get. I don't have the right contacts I guess. The further I advance in age, the more I find work necessary. As Voltaire said: 'Not to be occupied and not to exist amount to the same thing.' Being so far away, Jim, I cannot take an active part in the committee for our 40th reunion. I cannot even attend, unless business brings me back to the states. But, I will do the next best thing and send you my contribution. I hope the goal for half a million is reached. My very best regards to all of you on the committee and to all who ask of me."

From a news clip from the Journal of Commerce of New York City we note that Dr. **Robert S. Harris** was a featured speaker at an all-day symposium on "Dietary Chemicals in Relation to Dental Cavities" held January 18 at the American Chemical Society's 1966 winter meeting in Phoenix, Ariz. Bob discussed the effectiveness of phosphate foods as a supplement to fluoridated water in preventing tooth decay. . . . Another news clip informs us that Dr. **Eugene W. Boehne** spoke at a section meeting of the Dayton, Ohio, IEEE last November. Gene received his Masters in Electrical Engineering with our class; and in 1947 he joined the staff of the Institute as a full professor to direct the Cooperative Course VI-A in Electrical Engineering. In the 21 years from 1926 to 1947 he was with the General Electric Company, where he received two Coffin Awards for circuit breaker development. Upon his retirement from the M.I.T. staff in 1960, Dr. Boehne came to I-T-E in his present post as Consultant-Research and Development.—**Hermon S. Swartz**, Construction Publishing Co., Inc., 27 Muzzey St., Lexington, Mass. 02173

## '29

A very nice picture postcard of the "Santa Isabel" postmarked Panama Canal Zone, February 22, arrived from **Wally Gale**; he wrote, "Joan and I are returning from a swing through South America—Rio, Buenos Aires, the Chilean Lakes, Lima, and the Indian country of Peru. It was 112°F. in Brazil, so your New Hampshire winter will be quite a switch. But home will still look good! Hope we see you before Alumni Day." Thanks, Wally, for keeping us posted on the "travelling Gales." . . . Our congratulations to **Hunter Rouse**, who has been named Dean of the College of Engineering at Iowa State as of January 1. We are sure this honor is well deserved. Good luck and best wishes to you in your new position, Hunter. . . . Though my schedule at the convention of the Technical Association of the Pulp and Paper Industry was too tight to be able to attend the M.I.T. breakfast in New York City on February 22, I understand the meeting was very successful and enjoyable. I note the following members of the Class of '29 on the roster of TAPPI members who are M.I.T.-ers: **Angelo Altieri**, chief chemist of Tileston and Hollingsworth Company, Hyde Park, Mass.; **William Baumrucker**, Chas. T. Main, Boston, Mass.; **Edwin Ware**, manager paper industry sales, Warren Pump Inc., Warren, Mass.; **Dan B. Wicker**, Vice-president Research and Development, Huyck Felt Company, Rensselaer, N.Y.; and yours truly, **John P. Rich**, President, Improved Machinery Inc., Nashua, N.H.

From his biographical sketch, we note that **Al Altieri** resides in Watertown, Mass., and is an active TAPPI member on the Deinking Committee. Al has devoted his career to the pulp and paper field except for a year in the rubber business. Al enjoys gardening in his leisure time, and as far as we know is the only member of our class who has listed mycology (branch of botany dealing with fungi) as one of his hobbies! . . . While **Bill Baumrucker** has made the class news several times as an active participant in M.I.T. affairs, let us give you the "inside story" on Bill as gleaned from his resume. Bill is director of Chas. T. Main Inc. in Boston, where he is in charge of printing plant design. After his first job with Curtiss-Wright for 1½ years, Bill spent quite a few years in the newspaper field with the New York Daily News, Washington Times-Herald, and Boston Herald, followed by a period as general manager and Vice-president of Photon Inc., until his association with Chas. T. Main. Beyond business, Bill is interested in research activities for graphic arts as First Chairman of American Newspaper Publishing Association Research Committee. He and Doris are comfortably settled at the water's edge on Marblehead Neck, and Bill says "don't ever want to move again!" . . . We end our news with the sad note of the passing on June 14, 1965, of **A. Clarke Walling** of Brookline, Mass. Belatedly, we extend our sympathy to his family. . . . Kindest regards to all.—**John P. Rich**, P.O. Box 503, Nashua, N.H.

## '30

This month we have a lament from **Joe Becher** concerning the paucity of competent electrical engineers in the power field. As assistant chief electrical engineer of Burns and Roe, Inc., Joe is responsible for the electrical engineering output of some 30 E.E.'s working on the design of atomic and thermal plants, as well as industrial and space projects. Joe's lament struck a responsive chord; on a number of occasions in recent years I have tried unsuccessfully to persuade our Bob and some of his fellow E.E.'s at Lehigh that the greater glamour of electronics does not necessarily imply greater career opportunities. It appears that those of you working in the power field have an important public relations problem to solve in this respect. Joe's son, Joseph III, is a sophomore at Worcester Polytechnic, but he didn't say whether he had been able to persuade Joe III to take the power option. . . . In a somewhat analogous vein, **Marsh Cleary's** project (See June '61 Notes) of persuading his five daughters to marry farm boys seems to have been less than completely successful. According to the latest report, Judith is married to Maurice Pickard, an organic chemist, and Marsha to Robert Simpson of Simpson Sand and Gravel Company. However, Noel, a psychology major at St. Louis University, and Meredith and Victoria, who are in high school, are unmarried. Hence he still has three chances of acquiring a bucolic son-in-law. Marsh is a construction engineer with Anheuser-Busch, Inc. in St. Louis. He lists as extra-curricular activities "helping sons-in-law to add rooms to homes, shooting pool on a father-in-law's new table, getting a house ready to rent to next lucky daughter, and viewing a busy retirement in five years." . . . **Ted Bridge** is computer programming engineering problems for Catalytic Construction Company in Philadelphia. He first became interested in computer programming as a hobby while he was at Oak Ridge, using a TVA computer in Knoxville. Now it has become his vocation.

**Frank Burley** is superintendent of engineering at Western Electric's telephone manufacturing plant in Indianapolis. His daughter Barbara and her husband are both attending Indiana University after having lived in Turkey for two years, where his son-in-law was assigned by the Air Force. Son Charles is also married and is presently with the Air Force in Vietnam. Frank is a past chairman of the central Indiana I.E.E.E., chairman of the Indianapolis Public School Vocational Advisory Comm., member of the Purdue-Indianapolis Campus Advisory Comm., and vice-chairman of the Pioneer District Boy Scouts. He is also a winter golfer—says he hasn't missed a Saturday yet this winter. . . . **Clifton Burns** is a mechanical engineer with the National Institutes of Health in Bethesda, Md. . . . **Ralph Scott** has been elected president of Osborn Engineering Company, "Cleveland's oldest firm of consulting engineers." . . . Changes of address: **Emanuel Birnbaum**,



1726 Mills St., Sarnia, Ont.; **William Harris**, 129 Hampshire Rd., Wellesley Hills, Mass.; **Joseph Rehler**, 310 Cloverway, Alexandria, Va.; **Ross Wood**, Kimball Hill Rd., Wilton, N. H.—**Gordon K. Lister**, Secretary, 530 Fifth Avenue, New York, N. Y. 10036

## '31

The Reunion is now only one month away and we must begin the implementation of all the plans we have made. Your Reunion Committee will hold its final meeting on May 26. The ladies were invited to a meeting on April 13 to make sure that the needs and desires of the distaff side were properly considered. 82 class members say they will attend and 66 more hope to attend. With families this should mean a total attendance of 150 to 200, or more than we had at our 30th. Maybe the passing years have led to more interest in old friendships and M.I.T. associations. In addition to the 82 who plan to attend there are 11 Committee Members who have neglected to signify their intentions, but I am sure they plan to come. Are you one of those who hasn't taken the time to let us know your plans? The brochure was the last general mailing to all class members. Future mailings will only be sent to those who have indicated an interest in Reunion plans. At a recent meeting **Larry Barnard** recalled that Mrs. Compton had said that her husband had always considered 1931 as his class. It was agreed that we should invite Mrs. Compton to attend the Saturday night festivities. **Gil Roddy** volunteered to bring her to Wianno if she is able to come. We now have an updated mailing list of over 200 classmates who are interested in M.I.T. affairs. Copies of this list will be available to class members who might wish to contact old friends. Last but not least, Jake Wirth's Special Dark will be served at Sunday's Shore dinner, courtesy of **Russ Pierce**.—**Edwin S. Worden, Jr.**, Secretary, 35 Minute Man Hill, Westport, Conn.; **Kenneth J. Germeshausen**, Reunion Chairman, Edgerton, Germeshausen and Grier, Inc., 160 Brookline Ave., Boston, Mass. 02215

## '33

Folks, this set of facts and fancies will be made up mostly from the press section, as I am writing the April and May notes to be mailed on February 11, on which day Leona and I take off for Rio (see April notes). But there is a lot of serviceable material in the press file, all ready to be paraphrased and misinterpreted, sometimes by design. **Dick Morse** has very recently been elected a director of Dresser Industries, Inc., of Dallas, Texas. They are world-wide suppliers of industrial equipment and technical services. It appears to me that the press clip on Dick offers a fine short biography of a very capable classmate, and I hasten to copy

it, mostly verbatim. After graduation with us, Dick did graduate work in the University of Munich, Deutschland; he was president of National Research Corporation between 1940 and 1960; he served as Assistant Secretary for Research, Department of the Army, 1959-1961; and he has since been Senior Lecturer, Sloan School of Management, M. I. T. Dick has been associated with many new enterprises, growing out of research and development. He has also been associated with many projects relating to national defense, has been civilian advisor to the Atomic Energy Commission and to the Secretary of Defense, and has served on many committees, all in the above various fields of endeavor. He received an Honorary Doctor of Engineering Degree from Brooklyn Polytechnic Institute in 1959, and an Honorary Doctor of Science Degree from Clark University in 1960. In 1961 he received the Distinguished Civilian Award. He is currently a member of the Technical Advisory Board, U. S. Department of Commerce; Director of Japan Fund; Trustee, Mid West Research Institute, Chairman, Cryonetics Corp., and Chairman of the New England Council Committee on Science and Technology. I repeat, a very capable man and classmate. This is just another example of the way our successful old grads come back and enter the teaching profession, generally at great financial sacrifice. We find Dick in great company, when I think of Professors Jackson, Moreland, Hunsaker, and many others whose names do not come quickly to mind. Perhaps we might presume and say, "greater love hath no man." Dick, we salute you!!

We have a short one from the East St. Louis paper on Dr. **Ivan Cliff**'s recent passing in that city, after an extended illness. Dr. Cliff took an advanced degree in 1933, and was considerably older than the regular 1933 man, so most of us did not know him. He had been teaching until his illness, at Southern Illinois University, since his retirement from Research Chemistry with Shell Oil Company. Dr. Cliff was an assistant Instructor at M. I. T. at the time he took his Ph. D. And he was a member of the Grandfathers' Club, having an Ivan S. Cliff III right behind him. . . . We have one of our distinguished classmates in the news; Dean **T. K. FitzPatrick** of the University of Virginia School of Architecture has quit as Dean to go back to teaching in the same school, which, incidentally, he sort of founded; he was its first Dean. Fitz received both his undergraduate degree and graduate degrees from the Institute, all in Architecture. He has been awarded the highest recognition given to an Architect, that of Fellow of the American Institute of Architects (AIA). He has been very active in efforts allied to his profession, such as President of the American Collegiate Schools of Architecture and first Chairman of the AIA Committee on Nuclear Facilities. We of 1933 are proud of such fellows.

**Lynn Williams**, well known around Chicago, gets into the news as "Salt Box Speaker," at the Salt Box Coffee House on Landmeier Road in Arlington, Ill.

Lynn will discuss the "... relevancy of today's church," which, incidentally, he has discussed earlier at the eighth annual Pastors Retreat of Chicago's Church Federation. Lynn is unique in that he attended the Institute as member of the class of 1933, but did not take a degree; later he came back, and took an advanced degree from the Institute. Cal Mohr must know this chap. He is president of the Anocut Engineering Company, presumably in Arlington, Cal, what is this Salt Box? it must be an interesting group of church men.

I have purposely established a separate paragraph for one more of our distinguished classmates, **Bob Winters**. Bob recently stood for parliament and made it. After election he was appointed to the Ministry, though I can't even guess which post, as I sent him the clipping that I had cut out of a Florida paper. Bob recently made a speech at the Banff School of Fine Arts, to the Alberta Liberal Policy Conference: a 19 page, double spaced speech and mostly political in text content. Needless to say, Bob is a Liberal, Canadian style. Bob starts with a comment on the advance in Air Transport, and I expect that he knows what a trip that is (Toronto to Banff) in the winter by train. I do and enjoyed it very much, all the way to Vancouver in February. One early part of the speech I do wish to quote: "... I have given virtually all my time to business and University affairs . . . and participated in the development of natural and human resources . . . , and do not seriously contemplate a change." Bob mentions the strong gravitational pull exerted on Canadians by the U.S., which offers higher income prospects and some tax advantages, and suggests that these Canadians are needed right at home. He mentions capital needs and suggests that capital is needed in the form of indebtedness rather than ownership. In plain talk, borrow the money, and sell the stock at home. How right he is, but, it can be done best only in a period of rising prices. The banks do not like indebtedness in times of falling prices (depressions). I have always admired Canadian politics as opposed to ours, probably because I am one half Canadian. My Mother was Canadian born. It appears that every class at the Institute is entitled to having a member President of the Alumni Association. Bob Winters was ours. Again, folks, a very fine man.

We are off and running again, this time, after a few days rest. **Cal Mohr** comes thru again, just 1½ hrs late for the April notes, and 27 days early for the May notes, which I like real well. Cal is not only my midwest correspondent, but is publicity man for **Mal Mayer**, the eminent brewing consultant. Mal, since last mentioned has been to Europe, came home for the holidays, then took off for Australia and New Zealand, and will return via Singapore and other far eastern beer locations, to Europe again, and thence home: just to quote Cal, "Thus the life of a brewing consultant." To quote me, it is not as easy, Cal, as it might appear to the uninitiated, and, for my money, Mal can have my share. Traveling on business, sooner or later, becomes



just plain work. . . . Cal now reports on **Bob Seyl**, who was persuaded to attend the **Chicago Regional meeting of the ElectroChemical Society** to hear **Bob MacMullin, M.I.T. 1919**, with Cal. Bob has on the market equipment which measures, instantaneously, corrosion rates, using the system of electrodes which Bob invented and patented. Now the least we can do is to make due consideration of Bob when we need such equipment. But since I must sooner or later, establish an advertising policy for the Notes, no more for Bob Seyl until I (We) hear from him direct; well, not much anyway. Cal mentions that he had **George Henning's** Christmas card, and made a few recommendations. I wonder how much George had to do with that card. I cannot help but perceive Lucy's fine hand in its construction. Perhaps George mailed the complete production. Though I mentioned it before, the Hennings do get out annually most unusual and clever Christmas messages, and we sure appreciate getting ours. . . . **Chuck Thumm** writes Cal, from Arizona, that several members of his family were with them over the holidays, and that the enterprise is having a good season.

While I think of it, I wish to include a short list of fellows from whom I would love to hear, and pronto! To wit, **Duke Selig, John Rumsey, George Henning** (that card does not get you off the hook, George!), **Lou Flanders, Fred Murphy, Fred (Sois) Aldridge**, and maybe even **Ed Goodridge**; no class mail from any of these fellows in a long, long time.

It will be recalled that we mentioned the M.I.T. Club of Mexico City earlier. You will hear more from this Club, for they seem to be a bunch of go getters. For those who just came in, the occasion is The Eighteenth Annual M. I. T. Fiesta in Mexico; this year March 10-12, already a month gone when you read these notes. They have a short program for these two days, and many suggestions of how to spend many more days in Mexico. They have one additional idea which holds water; they have just sent me the "Special Notes for Class of 1924." I quote, "Recently our Class President, Paul Cardinal, has confirmed our thoughts, when he said that it is high time that he and Lorene attend the Fiesta, and, gave the signal that he thought it might be possible, that others of our class could get together and come down to a Special 1924 Reunion in Mexico." So in 1959, at the 11th Annual Fiesta, 1924 was represented by six men. In 1960 the class of 1921 came in force with 18 men. One class and then another class can do what looks like a better job than we can do. If this suggests anything to any of you folks, you have only to write me for the address of the Club's Mexico City representative.

A short note from **Bill Pleasants** confirms a dinner visit with the Pleasants, and with the **Bill Reeds**, Course IV, who also live in San Juan. The two Bills have met at meetings of the local M.I.T. Club, and it was suggested that the Reeds be with us for dinner also, and they will, on March 11, as our cruise ship spends 24 hours there. Bill Reed, by the way, and I quote Bill Pleasants, now has his own

firm, or partnership, or whatever these Professionals have, named **Reel, Torres, Beauchamp, and Marvel**, Architects, located in the Chase-Manhattan Building, Rio Piedras, apparently a suburb of San Juan. An evening with these two characters should provide us with mucho gossip, a few facts, and maybe more fancies. Inasmuch as I cannot recall ever having met **Bill Reed**, I sure am looking forward to adding a friend. If y'all will take a moment to reminisce, these Architect chaps lived and went to their school way, way, across the river, at the old M.I.T., long since razed, but not forgotten. So, we had little chance to meet the men and women who were classmates, but who seldom came our way. **Lou Flanders** asked at one time how he and I happened to know each other so long (he was IV-A), and, after some discussion, it appeared that it was our mutual connection with the Musical Clubs, mine with the Glee Club, and Lou with the Tecthonians.

February 8, still hanging on, and it never rains but it pours!! Who came through with a pinch hit? **Ellis Littmann**, no less. Was his note a life saver. He tells me that my capable namesake, **Slick Henderson, Jr.**, has been promoted to Vice-president and chief engineer of **Sverdup Parcel and Associates**. I am sure pleased that one of the Hendersons turned out to be an engineer. The nearest I ever got to being an engineer was as a member of the Engineering Committee, and then only because I had the knack of saving the company money by my pointing out weak spots, or grave errors, or other undesirable faults with the designs under discussion. I do not believe that I ever had an original idea, or at least not many. Slick, my congratulations, which carry with them the force of all of the class. . . . Ellis also has a word for **John Sweeney**, who, six months ago, was appointed to the position of Head of the **Missouri Board of Registration of Architects and Professional Engineers**. This log rolling Ellis seems to know that John is a very hard working fellow, and will do an outstanding job for the Sovereign State of Missouri. John, from all of us, our congratulations. . . . Now for Ellis and Ros (and two nicer folks you will not find around too often); they are "just fine." It appears that Littmann son, Ronald, chased a fine young lady until she finally caught him. Ellis, please tell the young man how we love you and Ros, and how we hope that you may soon be initiated into the Grandfathers' Club. Ronald will hang his hat in Boulder, Col., having married a gal from Denver. By the way, Ellis, why does it take so long to get me word about this ancestor project? The fellow was married in September, and my boys won't read about it until next May. This above refers to the sweet young thing (not Mrs. L. Jr.) who told her favorite young man that if they expected ever to become ancestors, they had jolly well better get going. Littmann daughter, Susan, is in high school, and is beginning to "be concerned about what college offers the most attractions." Now, that is one method of choosing a college, no? Perhaps Susan will ask Papa to write me and tell me just what constitutes an attraction.

The press just made itself known and mighty useful. **Dr. John J. Hanlon** makes the Michigan papers by being made head of the Department of Community Medicine at Wayne State University at Detroit. Dr. John is also health commissioner for the City of Detroit and Wayne County. He took his Bachelors and Masters at M.I.T., and a Doctor of Medicine at Wayne State, so his good works are appreciated by at least one of his Alma Maters. . . . Also, from Detroit comes news of **Frank R. Heselson**, Assistant to the Chief of Operations for the Army Corps of Engineers at the Soo Locks (Sault St. Marie). He has been awarded their "Man of the Year" citation by the National Federation of Federal Employees; their highest award, and it was given Frank for his "outstanding service to the National Federation and its members." . . . We are saddened by the untimely passing of **Dr. Victor Jaffe**, in Washington, D.C. He was a DDM, and recently was elected to the American College of Dentistry. Vic was very active in the work of the Washington Hebrew Congregation, and was Past President of the Congregation's Brotherhood; no small recognition for a tireless worker in the vineyard. Vic is survived by his wife Ethel, and three daughters. Vic was one of those who did not stay to take his degree with us, as he apparently thought better of it, and went into Dentistry. He was an Officer Veteran of World War II. However, Vic never forgot his first love: M. I. T. I did not know Vic, though many of us must have. I know that all of us would join me in offering our sympathy to his loved ones who survive.

That's it until the issue that comes out in June, folks. The year is almost over for class secretaries, believe it or not; just June and July left for us, then a long summer vacation which will end September 15. My very best, and for heaven's sake, let's hear from you.—**Warren J. Henderson**, Secretary, Fort Rock Farm, Box 14, Exeter, N.H. 03833

## '35

The vacation was delightful—sunny, carefree, interesting—and I am contrite for having broken **Allan Mowatt's** hope of class notes in every issue of *The Review*. Hopefully, I shall make better arrangements in the future. Shortly before I started my vacation I received the following letter from **Jack Colby**: "Dear Irving: I guess it is about time that I tried to help you out a bit. Anything for a buck since you have now offered a prize. Being down here in the Florida Keys, however, is about as far away as I can get from civilization and as a result don't have a very good opportunity to see many of the fellows. I will do my best even if I have to manufacture the news. After a year's leave of absence after my third heart attack I went back to work this last summer on a consulting basis with the **Johnson Service Company**. Incidentally we are now on the N.Y. Stock Exchange. Just finished 30 years. Am still a Vice-presi-

dent and member of the Board of Directors. I go back to Milwaukee every couple of months during the winter to attend board meetings and spend a week working. My three boys are progressing along. Dick, the oldest, graduated from Yale last year and is now in the Peace Corps in Nigeria, West Africa. He is running a Peanut Cooperative on the Southern fringes of the Sahara Desert. My middle boy, Chris, is a sophomore at Columbia. The youngest, Bob, is in high school down here with us. We plan to send him away to prep school next year. Any of the gang that is coming to Florida this winter and would like to see and fish the most interesting and beautiful part of Florida, drop me a line, or call. My phone number is 305 664-4238. Have a nice small motel near us where we can put people up very reasonably.

"Stopped off in Richmond last spring and had a nice visit with **Carson Brooks**. He still is in the Research Department of Reynolds Aluminum but has a special assignment. He appears to be a super consultant to both research and manufacturing. With his vast experience in the Aluminum Industry (He worked for Alcoa summers before coming to M.I.T.) he undoubtedly is one of the foremost experts in the U.S. Had a very interesting afternoon with him in one of the Laboratories while he diagnosed a serious problem in the casting of a new alloy. . . . As previously reported **Jack Ballard** sold out his share of the Sterling Corporation in Milwaukee of which he was president and is now loafing and doing all the things he has wanted to do. Jack and his family and my family have had many vacations together over the years. Part of his winter plans are to come down here and do some fishing. His oldest daughter was married last June. His boy is a senior at Exeter and I think hopes to get into M.I.T. His youngest daughter is the only one still at home.

"Was sorry that **Bob Anderson** couldn't get to the Reunion. Had a nice chat with him on the telephone. However, he is still at Filene's in Boston in charge of all building construction, operation and maintenance. He has been a busy man what with the expansion of their suburban stores in various shopping centers. We have all read about his golf prowess. I don't know when he finds time to work. . . . Had a nice Xmas Card from **Johnnie (Jack) Talbert**. I expected him at the reunion, but he let us down. He reports that his oldest girl Patsy is a junior this year at Barry College in Miami. His boy is graduating from a military academy this year. Doesn't know where he is going to college. They also have a little girl 9. . . . Had a nice note from **Al Greenlaw** on his Christmas card. He is still an enthusiastic golfer and skier. He has four children: David 16, Mary Ellen 14, Jim 12, and Billy 9. He apparently is still with Martin in Baltimore, although he didn't say. He is working on a new Solar Simulator at the moment.

"As you see I didn't have much news. I will drop a few lines to some of the boys the next rainy day and try and get you a lot more news. Give my best to Leo, Al Mowatt and the rest of the local gang. Ex-

pect to see Ed Loewenstein down here before long. Stopped and had lunch with him in Greensboro on my way north last year. He has already had one heart attack and if he doesn't slow down will end up a few feet underground."

**Larry Stone** received a surprise prize at the 30th Class Reunion for being "First in the Class to Retire." However, he now writes, "It was legitimate at the time for I had in fact retired and intended to give it a real good try. It didn't last long (to my surprise) and I'm now back at work. So if you'll let me know who really is the first in our class to retire I'll be glad to send him a 2-lb. box of candy. During my eight months of retirement, I had an extended stay in Santa Clara, Calif., while I became a grandfather for the second time. My older daughter, Marjorie, lives there with her Air Force Captain husband who works on the satellite program. Both grandchildren are boys, the older one is 5. My wife Lil and I also spent some time in Clearwater, Fla. But when I decided to leave retirement, it was back to Washington, D.C., where I had been stationed for eight of my 25 years of active duty.

"I'm with the Director of Procurement and Production at Headquarters of the Army Materiel Command as a cost and economic information specialist. This involves me with a Defense Department program which is attempting to improve the quality of cost estimating on our future weapons systems and to determine the economic impact of defense spending in various areas and industries. In January, my younger daughter, Nancy, got her B.A. degree in Psychology from the American University here."

**Ham Dow** has moved to Devon, Pa. He is still with G.E., but has transferred from Schenectady to Valley Forge. . . . The committee (me!), which is selecting the winner of the prize offered for the most newsworthy letter, is still deliberating; he will be announced in the June issue. The contest worked and the prize (also to be announced) will be commensurate.—**Irving S. Banquer**, Co-secretary, 20 Gordon Road, Waban, Mass. 02168; Regional Secretaries: **Arthur C. Marquardt, Jr.**, 178 Mt. Vernon St., Dedham, Mass. 02026; **John H. Colby**, Rt. #1 Box 91A, Islamorada, Fla. 33036; **Edward Loewenstein**, 444 Cornwallis Drive, Greensboro, N.C. 27408.

## '36

Our 30th Reunion is barely six weeks away. Have you indicated your intentions to attend? Do it now before you forget! . . . One classmate who will undoubtedly not be present at the reunion is **Bill Fingerle** who is on the way around the world with his wife Martha and two children. The Budelman Electronics Corporation, of which Bill was president, merged with Cardione Electronics last summer and Bill later severed his connection with the firm. On October 1 the family departed for Mexico and then on to Hawaii, Japan, Hong-Kong, Singapore,

Australia, Thailand, India and Jordan. In early March they had reached Cairo and will continue their travels until time to return for school in the fall. It all sounds just fabulous. . . . **Donald Kenny** has moved from Houston, Texas, where he was plant manager of Rohm and Haas Company's petrochemical plant, to Philadelphia, where he is production manager in charge of all domestic manufacturing operations. His address is Rohm and Haas Company, Independence Mall West, Philadelphia 19105. . . . **Bernard Sturgis**, a graduate member of the class has moved back to Wilmington, Del., from Tulsa, Okla. . . . **Dave MacAdam**, another graduate member and a senior research associate at Eastman Kodak, gave the Joseph J. Mattiello Memorial Lecture for 1965 before the Federation of Societies for Paint Technology last October. His subject was "Color Measurement and Tolerances." . . . The Alumni Office reports the death of **Dr. Byron F. Porter** of Caribou, Maine in September, 1965.—**Alice H. Kimball**, Secretary, 20 Everett Avenue, Winchester, Mass. 01890

## '37

**John Nugent** writes, "As no one ever writes to you—Happy Birthday, Bob." I appreciate the thought, John, and while what you express is not entirely true, it is getting very close. Class, I wish you would prove John wrong and the way to do it is to write letters. Thanks, John, for providing me with the lead to this never ending problem. . . . **Dexter Gaston** is now vice-president of Wall Industries of Beverly, N.J. . . . **Les Klashman** is regional program director for the Federal Water Pollution Control Program and is stationed in Denver, Col. He covers Idaho, Montana, Utah, Colorado, Wyoming, Arizona and western New Mexico. He recently spent two weeks in Mexico and is ready to go back now. Les is the proud grandfather of two grandchildren and by now the third grandchild. . . . It is my sad duty to report the death on August 1, 1965, of **David Fulton's** wife, June. Dave is living in Rye, N.Y., with his 11-year-old son, Todd. He is vice-president of Chemical Construction Corporation of New York City. The entire class joins me in sending our sympathy to you Dave and to your son, Todd.—**Robert H. Thorson**, Secretary, 506 Riverside Ave., Medford, Mass. 02155; **Prof. Curtiss Powell**, Assistant Secretary, Room 5-325, M.I.T. Cambridge, Mass. 02142; **Jerome Salny**, Assistant Secretary, Egbert Hill, Morristown, N.J.

## '38

Assistant Secretaries normally report about friends and associates, but never about themselves! **Norm Leventhal** being no exception, we had to ferret out the hard way this story about his "horizontal



skyscraper"—One Center Plaza! Norm and his brother Bob, '36, direct Beacon Construction Company, which in 20 years has grown to 118th place among construction companies in the U.S., and eighth in New England, with an annual contract level over \$34-million. Starting in 1946 with a capital of \$2,000, Norm and Bob began with commercial remodeling, and have worked their way into construction and development. Norm as president spends most of his time on operations, while Bob as treasurer takes responsibility for development and new ventures. Their work has spanned the country. On the New York Thruway, Beacon constructed 40 toll booths and service plazas—while at the same time building the restaurants on the Ohio Turnpike! Post offices have been attractive too, with Beacon handling 12 of them, in eight states and Puerto Rico, for a total of \$30-million. This is the kind of activity that broadens company objectives, for customarily these post offices are privately owned and then leased to the government. And for a hand in housing projects, Beacon completed a \$19.6-million development at Fort Devens, and 1000 precast concrete low-cost homes in San Juan's Villa Prades Development. Ten years ago Norm and Bob began moving more actively into their own projects, to even out the seasonal variation in the construction business. Today about 50% of their activity is in these projects of their own management. They are located nearer home, around the Massachusetts Turnpike as a demand axis. For example, an apartment development near Worcester, an Air Force development at Route 128, a 25-acre Office Park in Wellesley, a housing development in Castle Square, and One Center Plaza—a building 900 feet long by eight stories high, in Boston's Government Center. Distinguished as well by its precast concrete windows and its arcade, the Center Plaza office building represents a \$25-million project in itself, and it's even moving along ahead of schedule. Center Plaza represents the confidence Norm and Bob have in the continued growth and expanding need of the Boston area. Of course one of the tenants will be Beacon Construction, but the operating quarters now on Hano Street in Allston may move to the Wellesley Park Development. "We've done work all over the country," Norm explained, "but what is really significant now is our work in Boston. One Center Plaza and the Castle Square development are of prime importance because this is what we look forward to accomplishing over the next few years."

Norm pointed out to one aggressive interviewer that survival in the construction business may be a matter of individual initiative. "Because of the rugged nature of the business you find very few second generation contractors in the United States," he said. "It really depends on the individuals. If they are strong the business continues. But once the rugged individuals leave, the business goes down the drain."

Norm is currently president of the Associated General Contractors of Massachusetts, Inc., having served as Vice-pres-

ident last year. Previously he had been chairman of the labor, membership, and finance committees. Norm is also general chairman of the 1965-66 United Jewish Appeal, and chairman for construction companies of the Greater Boston United Fund.

"Designed to compete for the new NASA research programs, with emphasis on Apollo applications, Lockheed Missile and Space's Research and Development Division has been established, with Vice-president **Gladyn H. Putt** as assistant general manager. All company NASA projects and proposals not involving the Agena space vehicle will be moved from the Space Systems Division to the R & D Division. Putt, formerly assistant general manager of SSD will be responsible for tying our NASA new business efforts closely with our research and development capabilities." Report of this new assignment for Glad comes from **Paul Black**, who continues, "Also I noted in Aviation Week that **Wenzel Wochos** has been named Director of Manufacturing for ITT's Canon Electric Division in Los Angeles. . . . Visited 'Grandpa' **Don Severance** and Phyl during the Christmas season." Paul reports aside, "and joined the admirers of their first grandchild."

First Oak Leaf Cluster to the Legion of Merit Award was presented to Maj. Gen. **Austin W. Betts** "for exceptionally meritorious conduct in the performance of outstanding services while serving as Special Assistant to the Chief of Research and Development, for the Nike-X Threat Analysis Study from February 1964 to December 1964." You might wonder how come such an accomplishment did not appear earlier in this column, and I'd counter by observing that it's still news inasmuch as a man doesn't get the Legion of Merit award every day! In Austin's case, of course, this is his second—the original was for service in India and China during World War II. Austin was responsible for integrating all facets of the Nike-X Threat Analysis Study, a very broad investigation involving not only the Department of Defense but many industrial laboratories, Government agencies, subcontractors and consultants throughout the U.S. Beginning his research and development career at Los Alamos Scientific Laboratory, Austin served as military assistant to the Director of Defense Research and Engineering, Director of Military Applications U.S. Atomic Energy Commission, and nearly two years ago was appointed Deputy Chief of Research and Development.

**Nat Martin**, who took his S.M. in Course I with us, has been appointed Staff Vice-president for engineering and construction of Olin Mathieson Chemical Corporation. Nat studied with us after graduating from West Point, and went on to become assistant to the chief of staff of the Persian Gulf Command in War II, and then to executive secretary to the Munitions Board DOD, deputy engineer in charge of new construction in France, and member of the Advanced Study Group and of the faculty of the Army War College. Retiring from the Army in 1957, Nat joined IBM as director of the facilities planning and construction depart-

ment, and then assistant to the president of the Real Estate and Construction Division. Nat is a director-elect of the Building Research Institute.

Are you hep to MCOAG? **Russ Coile** has been named director of MCOAG (Marine Corps Operations Analysis Group) of CNA (Center for Naval Analysis) of TFI (The Franklin Institute). Russ' group is a separate operating section of the CNA—a private scientific organization which engages in systems and operations analysis for the Navy, for whom it prepares broad-based, long-range studies as a basis for decisions—established to cover more completely the span of analysis needs of the Marine Corps. Russ has previously been director of research for MCOAG, and began his association with the group over 20 years ago when it was established in M.I.T.'s Division of Sponsored Research. The Operations Evaluation Group transferred to the Franklin Institute in 1962. Remember that idyllic research job Russ had in 1939-42 "measuring the earth's magnetic field, cosmic rays, solar flares, earthquakes, atmospheric electricity, earth currents, the ionosphere, and other geophysical phenomena" at Carnegie Institute's Huancayo Magnetic Observatory in Peru?

Describing his work on balloon astronomy in the Tufts Alumni Review, **Alvin Howell** observes, "Acquiring a designated star with the telescope dangling from a twisting balloon—when the field of view is as small as that used in Sky Top—is roughly equivalent to finding it while lost in the woods when your only view of the sky is through a long hollow tube the size of a broomstick and as long as your living room!" Al has been professor and chairman of the Department of Electrical Engineering at Tufts since 1943. For early work in high-altitude balloon technology, the Air Force in 1955 presented him the Exceptional Service Award. Since that time the Tufts team has continued to fly controlled balloons on research missions at maximum altitudes, and has moved into high-altitude astronomical observation. Sky Top uses plastic balloons of about 5-million cubic foot capacity, to lift a 1200-pound payload including first a 12-inch telescope and now a 24-inch telescope, to altitudes of above 100,000-feet. The guidance system is capable of finding at night-time any specified target of moderate brightness, and tracking it with a precision of a few seconds of arc. "Running such a gauntlet of problems to get a good look at the planets," Al says, "involves much that is not ordinarily associated with the role of an academic department. But the presence of this ongoing research effort is a stimulus to teachers and students alike, keeping them in touch with live problems and giving them the pride and joy of accomplishment."

**Chuck Delano** was honored by J. T. Ryerson and Son, Inc. for 25 years of service. He received a gold "service recognition" watch at the Quarter Century Club banquet this spring. Chuck is with the Boston service center of Ryerson, where he is work order supervisor in their distribution of steel, aluminum, and space age metals. . . . Right here in Rochester,



which I am forced to admit has the best M.I.T. Alumni Club in the country, **Bob Bowie** has been elected a member at large of the Executive Committee. Bob is assistant manager of the Government Sales Division at Kodak, and thereby responsible for all of the regular product items that the Government buys from the Eastman Kodak Company. Bob has never looked as discouraged as many salesmen who are limited to one and only customer! . . . Dr. **Nat Korman** has been appointed chief engineer of RCA's new Graphic Systems Division. Nat also attended Worcester and UP, but received his S.M. with us. Formed to develop, manufacture, and market new electronic equipment and systems for handling all types of printed information, his division will begin by applying electronics to the needs of the printing industry. Established at RCA's Princeton Research Center, the division is instructed to "range across a broad spectrum of the graphic arts," to include the electronic storage and retrieval of library information, automatic preparation of printing plates, computer-controlled color printing, etc. It will build and market all of its own products except those components that may already exist in the company's product lines.

**Bill Steiner** has been elected a Fellow of the IES, in recognition of technical leadership in the field of illuminating engineering. Director of Operations of Wakefield and Art Metal Lighting Divisions of Wakefield Corporation, Bill has been actively involved in illumination since graduation. Progressing through Westinghouse, Jefferson Electric, and Art Metal, he was appointed Director of Operations two years ago when Wakefield brought its Art Metal and Wakefield Divisions under joint managership. . . . First Ross Professor of Engineering at Purdue, **Reinhardt Schuhmann, Jr.**, resigned as Head of the Purdue School of Metallurgical Engineering to accept the distinguished professorship. After 16 years as a faculty member in the Department of Metallurgy at M.I.T., Reinhardt moved to Purdue, continuing his research in mineral dressing. Most recent honors have been for contributions toward improving the strength and processing of cast iron through research in applying thermodynamics to high temperature metallurgical systems.

The Cambridge Chamber of Commerce carried the following thumbnail sketch of **Al Wilson**: "President and Treasurer of the A. O. Wilson Structural Co., Inc., fabricators of structural steel and miscellaneous iron for buildings and bridges. He is a corporator of the Lexington Savings Bank, and a director of the Reliance Cooperative Bank, the American Leprosy Missions, Inc., and the Massachusetts Council of Churches. He is a past president of the Cambridge Rotary Club and a past moderator of the Massachusetts Congregational Conference." . . . **Kentaro Tsutsumi** has been granted a patent on a hydraulic drive developed for NASA Manned Spacecraft Center, that will position a load of 18,000 pounds with an accuracy of  $10^{-4}$  inches. Kentaro, working at M.I.T. under a Manned Spacecraft Center contract, developed a device em-

ploying piston-controlled bellows with a small diameter input and a large diameter output, in order to provide accurate linear displacements on seismographs, interferometers, and autocollimators—and to provide their necessary accurate leveling.—**Frederick J. Kolb, Jr.**, Secretary, 211 Oakridge Dr., Rochester 17, N.Y.

## '39

**Richard E. Christie**, II-A, has been promoted to general manager of General Electric's Television Receiver Department, in Syracuse, N.Y. Dick received his bachelor's and master's degrees in '39 and '40, in the G.E. Cooperative Program, and joined G.E. in 1940 in its creative engineering program. He had several assignments in the field of aircraft ignition, and is credited with development of one of the first high-altitude aircraft engine ignition systems. He transferred to the Dishwasher and Disposall Department of the Major Appliance Division in 1945, and held managerial positions in quality control and product planning. In 1960 Dick became manager of engineering for the Hotpoint Home Laundry Department, and in 1961 became manager of Home Laundry Operations with full responsibility for engineering and manufacturing.

. . . **Seymour E. Heymann**, XV, of 784 Boal Parkway, Winnetka, has been elected Vice-president, marketing services, for Signode Corporation, Chicago. He had joined Signode in 1950 as assistant to the sales director, and then organized and took charge of Signode's marketing research department. In 1955 he took on the additional duties as manager of advertising and sales promotion of this large producer of steel and non-metallic strapping. Seymour is a member of the American Marketing Association, the American Statistical Association, and the Industrial Advertising Research Institute. Those memberships tie closely in with the write-up appearing in our 25th Reunion booklet, which stated in part: "Interested in merging scientific and creative methods of marketing."

In the search for current notes, a most pleasant phone call to nearby Kutztown brought out this information from Dr. **Gerald L. Tawney**, VIII-Grad. As a practicing physicist, he is interested in the design of transformers of all frequencies, and he carries out studies of magnetic materials and magnetic measurements in pursuit of his goal of producing transformers which are lighter, more efficient, and less expensive. He has very deftly arranged his activities into two parts, in an enviable situation: In his farm home on R.D. #2, Kutztown, he has assembled test and research equipment so specialized as not to be found in many commercial laboratories. Part of his time is devoted here. The balance of his time he spends as a design consultant with Nytronics, of Alpha, N.J., working with special types of transformers. Frequently he flies with Nytronics personnel to customers' plants—in his own twin-engine plane—in order to get closer to customer prob-

lems and to help design transformers well suited to their needs.—**Oswald Stewart**, Class Secretary, 3395 Green Meadow Circle, Bethlehem, Pa., 18017.

## '40

**Divo Tonti** was the guest speaker at the March 2, 1966 meeting of the M.I.T. Club of Northern New Jersey. Carole Clarke, Secretary of the Class of '21 reported on Divo's talk as follows: "I have held the enclosed notice of a meeting of the M.I.T. Club of Northern New Jersey until I could give you a report on your good classmate and member of the Club, Mr. D. Louis Tonti, the speaker.

"As you may not know regarding the Garden State Parkway, which is under Mr. Tonti's direction, there has been considerable aroused public sentiment, especially in Essex County, where tolls have recently been added at three busy interchanges that formerly were free. This is aggravated by public belief of long standing that the Parkway Authority had originally agreed to make the entire Essex County section free for intra-county travel and there have been years of resentment at a major toll point which was built to straddle the road within the county. Also, there has been growing feeling of both approval and opposition to Mr. Tonti's pet personal project (now underway) to build an extensive cultural center on the Parkway down in Monmouth County, where we live. Parenthetically, Mr. Tonti has recently been persuaded by his friends not to run for the U.S. Senate so he could remain to see this project through to completion.

"To his everlasting credit, Mr. Tonti made a most favorable impression on the entire audience, men and women alike—some of whom were primed at the outset for a real barrage! His talk was superb. His mastery of his subject dominated the situation. He anticipated what might eventuate and easily soothed all the savage breasts with excellent cold facts, sprinkled with good stories and given in a most sincere delivery, together with a lot of impressive data on economics, planning, maintenance, etc.—of the entire Parkway, in addition to his specific subject—all of which adequately answered any possible opposition. There wasn't a hostile inquiry in the ensuing question period! New Jersey certainly has a devoted public servant with a very creative mind; a capable administrator who has complete knowledge and control of his operation, down to the last minute detail. If you have any more outstanding speakers in the fine Class of 1940, please tip us off to invite them to address us, too!"

Dr. **Carlos F. Graef** is one of the three members of Mexico's Nuclear Energy Commission. A second member is Dr. Manuel Vallarta of the Class of '21. . . . Colonel **George Weinbrenner** is one of the 160 business executives and government officials participating in the 49th session of the Advanced Management Program of the Harvard University Graduate School of Business Administration. The

program is designed especially to prepare executives in, or approaching, top management positions to exercise full leadership responsibility. . . . **Ed Fettes** has been elected chairman of the Division of Polymer Chemistry of the American Chemical Society. . . . **George Alexander** is the new operations manager of Dravo Corporation's Engineering Works Division. George has been with Dravo since leaving Tech. . . . **Charles DeMailly** is the new executive vice-president of the Emhart Corporation.—**Alvin Gutttag**, Secretary, Cushman, Darby & Cushman, American Security Building, Washington, D.C. 20005.

## '41

As of this writing one of your assistant secretaries is filling in for our faithful Class Secretary, who is vacationing in Antigua. Looking for news, I called our 25th Reunion Chairman, **John H. Macleod, Jr.**, to get the latest news on the reunion plans. John had just returned from Pittsburgh and had noted an article in the Pittsburgh Press, telling of the appointment by Army Secretary Stanley Resor of our classmate, **Henry Avery**, as his civilian aide for western Pennsylvania, an honorary post. Hank, Executive Vice-president of U.S. Steel Chemical Company and Vice-president and Director of Oxo Chemical Company, is also chairman-elect of the Pittsburgh Chamber of Commerce.

Our reunion program will get tremendous thrust as we blast off Friday morning when **Frank Phillips** and **Charles King** of NASA present the latest space spectacular information. Saturday morning we will have Nobel Prize winning classmates, **Charles Townes** and **Stark Draper** present the latest in science and engineering.

## 25th Reunion

President Stratton and President-elect Johnson will host a reception for us at the President's house on Saturday. The boat tour, around Boston Harbor that will take us to some of the historic spots will be conducted by Edward Rowe Snow, historian and author. A separate tour will be held for the youngsters. These will take place on Friday and leave from Pier Four, now famous for Anthony's Restaurant, where classmates and spouses will dine on lobsters and steamed clams. Saturday night we go to the beautiful new Stratton Student Center, where we will dine in the Lobdell Room and dance in the Sala de Puerto Rico. As of March 7, 123 classmates have said they plan to come and at least 20 more will probably come.

In other news, **Joseph S. Bowman** is author of an article for the Independent Petroleum Monthly entitled, "Resourcefulness is Key to Progress and Profit." Since graduation Joe has worked for Union Sulfur and Oil Corporation (now Union Texas Petroleum) in various geological and engineering capacities and was assistant to the president in 1953 when

he joined a private capital investment firm in New York City handling its oil securities and production investments. In 1954 he joined Colorado Oil Company, a division of Colorado Oil and Gas Corporation. . . . **Dr. Charles Townes**, who this year was made a member of the M.I.T. Class of '41, recently addressed a seminar held by the M.I.T. Club of Washington, D.C., demonstrating several laser systems. Classmate Lt. General **Leighton I. Davis** of the Air Force Systems Command at Andrews Air Force Base was a Deputy chairman for the seminar. Classmate **Merlyn J. Block** is secretary of the Washington Club. Merlyn is a staff member at the Army Diamond Ordnance Laboratory.—**Walter J. Kreske**, Secretary, 53 State Street, Boston, Mass. 02109; **Everett R. Ackerson**, Assistant Secretary, 15 Vernon St., S. Braintree, Mass.

## '42

As I write these notes, **John Cantlin** is currently attending the Harvard Business School in the 49th session of the Advanced Management Program. I shall try to see him before he leaves the School. . . . **Monroe Sadler** has been appointed an assistant director of research of Du Pont's Central Research Department. He has been with the company since 1949 and a laboratory director since 1963. Incidentally, he received his doctorate in physical chemistry from Carnegie Institute of Technology in 1949. . . . **William J. Kotsch**, who is a U.S. Navy Captain, had a very interesting article on the U.S. Naval Weather Service in the recent issue of the U.S. Naval Institute Proceedings. . . . Finally, I round out these meager notes with the information that **Bob Rines** is beginning to make plans for the 25th Reunion. I believe he is planning to set up regional centers and if anyone is interested in working on this project, I suggest you get in touch with Bob at 25 Shady Brook Lane, Belmont, Mass. 02178.—**John W. Sheetz**, Secretary, Harvard Business School, Boston, Mass. 02163

## '44

**Robert E. Benedict** has been appointed Executive Vice-president of the Phelps Dodge International Company effective January 1. A release by the company states, "Mr. Benedict is a native of New Jersey, now residing in Connecticut, and was graduated from M.I.T. with a B.S. degree in 1944. Before joining Phelps Dodge, he was budget director of the American Export Lines. Previously, Mr. Benedict had been associated with Moore-McCormack Lines, Inc., New York, and the Celanese Corporation of America, Charlotte, N.C. In 1951-1952 he was an economic consultant to the Commonwealth of Puerto Rico, San Juan, in connection with that government's economic development program, "Operation Bootstrap." He joined Phelps Dodge Inter-

national in 1958 as manager of marketing and administration, was made general manager in 1960 and Vice-president in 1962." . . . From the SPE Journal of January 1966 we learn of **John L. Hull** who is "vice-president of Hull Corporation, Hatboro, Pa. He graduated from M.I.T. in 1944. For two years, he worked with Commonwealth Aircraft Corporation, Melbourne, Australia. He also spent two years with Fischer and Porter Company, Hatboro, Pa. He started Hull Standard Corporation and Hull Corporation with his brother and others in 1955, for the manufacture and sale of compression and transfer molding presses, vacuum process equipment, and liquid resin dispensers. Mr. Hull is a member of SPE (Philadelphia Section), past officer of both the Thermosetting PAG and the Plastics in Electrical Insulation PAG, and a current member of SPE Publications Committee. He is active with ASTM Committee F-1, Sub-Committee V, on materials in microelectronics."

In the American Journal of Physics for December 1965 there is a book review by **Sanborn C. Brown** at Tech. He commented on a translation of the text "Controlled Thermonuclear Reactions" by the Russian author L. A. Artismovich. Sanborn states that "this book is destined to be one of the classic references in the plasma field." . . . The following are changes in address: **William J. Coppins**, P. O. Box 211, Scottsdale, Ariz. 85252; **William H. Farrow, Jr.**, Apartment 207, 312 Shipley Road, Wilmington, Del. 19809; **Arthur Fuerman**, 407 Bridge Street, Phoenixville, Pa. 19460; **Miss Betty E. Fullerton**, 309 Belleville Street, Victoria, B.C.; **Warren J. Harwick**, Rex Chainbelt, Inc., Technical Center, 4701 West Greenfield, West Milwaukee, Wis. 53214; **Gay V. Land**, 200 East 66th Street, New York, N.Y. 10021; **Clifford H. Matson, Jr.**, 1717 Hamilton Drive, Valley Forge, Pa. 19481; **David T. Woodbury**, Spring Valley Road, RD #3, Doylestown, Pa. 18901. . . . Drop me a note or give me a call if you are in the Washington Area.—**John Barmby**, Assistant Secretary, IIT Research Institute, 1200 17th Street, N.W., Washington, D. C. 20036, 296-1610; **Paul M. Robinson, Jr.**, Secretary, 7710 Jansen Drive, Springfield, Va. 22150

## '46

Next month at about this time everyone should be having a fine old time at the Provincetown Inn. The dates are June 10 to 12 on the Cape, and then Alumni Day, June 13, at M.I.T. If you didn't receive your 20th reunion invitation, or if you misplaced it, drop a note to **Bob Striker**, 31 Anchorage Road, Port Washington, N.Y., and he will mail one right out to you. Next month I hope to have a list of those who will be attending.

**Edward J. Fradkin** has recently been appointed Assistant Vice-president, Project Engineering, at Scientific Design Co., Inc. of N.Y., N.Y. Ed has an M.S.Ch.E. degree from M.I.T., is a licensed profes-



sional engineer, and a member of Sigma Xi, Tau Beta Pi, American Institute of Chemical Engineers, and the American Chemical Society. He lives at 18 Glamford Road, Great Neck, N.Y., with his wife and two children. . . . **Frederick J. Ross, Jr.**, is general manager of The Carborundum Company's Bonded Abrasives Division, and has just been named a vice-president of the company. Fred is a member of the Boards of Directors of the Tysman Machine Company and the Grinding Wheel Institute. He is also on the Executive Committee of the Diamond Wheel Manufacturers Institute. He and his wife and three children live in Snyder, N.Y. . . . Another classmate recently promoted is **Howard T. Du Bois**, who has been elected secretary of Water Service Laboratories, Inc. The firm offers a variety of services including advisory and consulting services on water use and water-caused problems. . . . **Edward H. Bowman**, professor of industrial management at M.I.T., has been elected to the Board of Directors of the Bay State Milling Company, a Winona, Minn., firm. . . . Doctor **Robert G. Wilson** has been appointed assistant professor of Pharmacy at the University of Houston College of Pharmacy. Bob earned a B.S. in Chemical Engineering in 1946 and a B.S. in Business and Engineering Administration, in 1947, both from M.I.T. He earned his B.S., M.S. and Ph.D. in Pharmacy from the University of Illinois. . . . **William F. Brace** collaborated with two others in an article published in the December, 1965 issue of the Journal of The American Ceramic Society entitled "Effect of Porosity on Compressibility of Glass." Bill is associate professor, Department of Geology and Geophysics, M.I.T.

Before signing off to return to the golf course (mid March, the earliest golfing season in Minnesota on record) I'll report a few address changes. Dr. **Howard V. Perlmutter**, P.O. Box 306, Lawnne Gare, Switzerland; **Samuel Meerbaum**, 20877 Kelvin Place, Woodland Hills, Calif. 91364; Lt. Cmdr. **Lawrence G. Body**, 1086 El Camino Drive, Costa Mesa, Calif. 92626; **William E. Becker**, 56 Sherwood Lane, Raynham, Mass. 02767; **J. Graham McQuarrie**, 108 Beechwood Court, Four Seasons, Chesterfield, Mo. 63017; **John P. Olson**, 2202 So. Delaware Pl., Tulsa, Okla. 74114; **Pete G. Peterson**, Bell and Howell Company, 7100 McCormick Rd., Chicago, Ill. 60645; **Roderick F. Read**, Box 416, Ingleside, Texas 78362; **Henry E. Viola**, Reeves SPL, Lodivecchio, Milan, Italy; and last, but by no means least, **Charles T. Wilson 3rd**, RR#1, Ridgeway, Ont. Canada.—**John A. Maynard**, Secretary, 25 Pleasant Lane, North Oaks, St. Paul, Minn. 55110.

'48

**Carl Blake**, leader of the phased-array group at the Lincoln Laboratory, was quoted, informally, in the January 4 issue of Electronic Design as saying that: "The huge amount of money invested by inte-

grated-circuit manufacturers a few years ago in developing low-frequency ICs paved the way for microwave companies. Microwave ICs are inheriting fabrication processes, design approaches and even the problems from low-frequency circuits."

(The present author of these notes lays no claims to understanding all of the technical details of some of the things he lays down herein for your perusal, but he does so with the confidence that there are many of you who will find these remarks interesting, informative, and significant.)

**C. R. Gates**, manager of marketing for Northrop Norair since 1962, assumed, on March 1, the title of vice-president-International. Mr. Gates was a research engineer at Hq. USAF from 1952 to 1955, and prior to that time was an aerodynamicist with Convair (now General Dynamics) in Fort Worth, Texas. During World War II he served as an officer in the U. S. Navy. He joined Northrop in 1955 as a development planner, becoming successively director of Development Planning, assistant manager and then manager of Marketing at Norair. . . . **Eugene Ashley**, of General Electric in Burlington, Vt., will represent the Institute at the inauguration ceremonies at the University of Vermont on April 16, 1966.

. . . **John A. Wolfe** has been named a divisional vice-president within Itek Corporation's Government Systems organization. John has been a member of Itek since the Company's inception in 1958 and has held a variety of managerial posts for Government Systems. His most recent position was manager of the Optical Systems Division, with responsibility for all phases of execution on major contracts involving the development and production of photo-optical and electromechanical systems. He, wife Betty, and their five children—2 girls and 3 boys—live at 111 Richardson Drive, Needham 92, Mass. Itek Corporation, with headquarters in Lexington, Mass., is a leader in the development and production of advanced information systems. The company's four major areas of operation are optical systems and reconnaissance, commercial reproduction equipment and supplies, photo-optical storage and computing, and graphic data processing.

**Alex Weinstein** was a participant last November in a panel discussion at the Central States Regional Conference of the American Institute of Architects held in Des Moines, Iowa. The Conference addressed itself to the topic "Architecture: Mid-America." Mr. Weinstein is a partner in the Omaha firm of Steele, Sandham, and Weinstein, known throughout Nebraska for their excellent design and wide range of ability. . . . **Peter H. Spitz**, author of an article in the December 20 Chemical Engineering, is a director of Chem Systems, Inc., of New York. He previously worked for Scientific Design where he was head of the Project Development Department and held the title of Assistant to the President. He also had seven years of experience with Esso Research and Engineering in process design and project management. At Chem Systems, he has directed project evaluation, chemical plant studies, and engineering design consultation. . . . **G. H. Bonsall**,

Manager, Technical Department, Plastics and Resins Division at Shell Chemical Company's Houston Plant, is undertaking a new assignment reporting to the manager, Manufacturing, Plastics and Resins Division, New York. Mr. Bonsall joined Shell Chemical Company at the Houston Plant in 1948 as a Junior Chemist. He resides with his wife and four children at 711 Mockingbird Lane in Pasadena.—**Robert R. Mott**, Secretary, Kent School, Kent, Conn. 06757; **John T. Reid**, Assistant Secretary, 22 West Bryant Avenue, Springfield, N. J. 07081; **Richard V. Baum**, Assistant Secretary, 1718 E. Rancho Drive, Phoenix, Ariz. 85016.

'49

**Charles Pike** has been appointed Administrative Vice-president of Merck Sharp & Dohme Research Laboratories in West Point, Pa. Charlie, who lives at 425 Bair Road in Berwyn, was formerly vice-president for Operations of the pharmaceutical area of his company and, in that capacity, directed all production, engineering, purchasing, and quality control functions. . . . **Henry Fitzpatrick** has been appointed Director of Marketing for the Engineered Products Division of Royal Industries, Inc. in Pasadena, Calif. Royal Industries is a multi-division manufacturer of precision products for the military, industrial and consumer markets. The Engineered Products Division manufactures precision equipment for the nuclear and aerospace industries. Henry lives with his wife Loretta and five children, Kathleen, Denise, Amy, Henry, and David, at 3575 Shadow Grove Road, Pasadena.

**Ross Watson**, manager of Hercules Powder Company's fibers and film plant at Covington, Va., has been put in charge of coordinating the formation of a new company, jointly owned by Hercules and the firm of Farbwerke Hoechst A.G., to produce polyester fibers. The new plant is being built in Spartanburg, S.C. Hercules is already well along in building a plant there to produce DMT (dimethyl terephthalate) which is a basic raw material for polyester fibers. . . . **Risque Benedict** is the recently appointed sales manager of the Marine Service Division of Lockheed Aircraft Service Company. From 1954 to 1961, Risque was in charge of the corrosion section and later the inspection section for Creole Petroleum in Venezuela. In this work, he dealt with the problems of underwater and underground cathodic protection of pipelines and well casings, automatically controlled cathodic protection systems, and protective coatings for marine atmospheres. He is a member of NACE and a past secretary-treasurer of the Washington-Baltimore Section of NACE. . . . From the 15th Reunion questionnaires, come notes on three more men as follows: **Ray Larson** and wife Muriel live with their three children Alan, Eric, and Lois at 33 Watson Avenue, Attleboro, Mass. Ray is superintendent of the Larson Tool and Stamping Company. Ray has gained five pounds since gradu-



ation, likes to hunt, fish, and play golf, travels 1000 miles per year on business and has never changed jobs. . . . **Harold Ingraham** didn't get to the reunion but he sent along a questionnaire anyway. He and his wife Sandra live with son Jeffrey and twin girls Suzanne and Elizabeth at 44 Fenway Drive, in Springfield, Mass. Harold is a pension actuary with the Massachusetts Mutual Life Insurance Company. In this connection he has become a Certified Life Underwriter and a Fellow of the Society of Actuaries. He is also a member of the Education and Examination Committee of the Society of Actuaries. Harold has put on 13 pounds and can do enough pushups to bring on a heart attack if he did that many pushups. His job takes him on 25,000 business-connected miles of travel a year. . . . **Jabez "Stoney" Harford** lives at 210-04 32nd Avenue, Bayside, N.Y., with his wife Dora and children Andrea and Wendi. If memory serves, Stoney didn't make it either. That was too bad because we had Stoney lined up to be chairman of an important committee. Anyway, he is a district sales engineer for the Niagara Blower Company in which capacity he travels 20-25,000 miles annually. He is in excellent physical trim and considers photography, fishing, and skiing to be relaxing avocations whenever he has time to advocate.—**Fletcher Eaton**, Secretary, 42 Perry Drive, Needham, Mass. 02192

## '51

I am sorry to have to start on a sad note but I have recently (and belatedly) received word of the death of Dr. **Frank Bolton**, which occurred on October 31, 1965. Frank received his Ph.D. in Chemistry with our class and then joined Dow Chemical in Midland, Mich. He is survived by his parents, a sister, a brother, and by his wife Kathryn (Emmenecker). Our condolences are extended to his family. I'm sure that all of our class feels a sense of sadness at losing Frank, one of our fellow classmates. . . .

**Fred Bumpus** was recently appointed Vice-president of Underwriting and Corporate Secretary for Boston Manufacturers' Mutual Insurance Company and for its sister company, Mutual Boiler and Machinery Insurance Company. In addition to his degree from Tech, Fred has an LLB from Fordham Law School and is a member of the Massachusetts Bar. He has been with Boston Manufacturing's Mutual since 1953. He and Mona live in Weston, Mass. . . . **David Bossen** was named a director of Industrial Nucleonics Corporation. He currently serves the company as vice-president, operations. David has been affiliated with Industrial Nucleonics since graduation. . . . **Vaughan Chambers** has been with Du Pont's Photo Products Research Laboratory in Parlin, N.J., since receiving his Doctor's degree in organic chemistry at M.I.T. in 1951. A news release has informed us that he has just been made Director of this facility. . . . Col. **Kenneth Cooper** is the AEC's Assistant Director

for Army Reactors. Col. Cooper received an S.M. in Civil Engineering with our class. The Coopers have two boys and live in Alexandria, Virginia. . . . **John P. Dowds** recently authored an article in *World Oil* and the accompanying biographical sketch informed us that his forte has been in the field of gas and oil exploration and production and helium and uranium exploration and mining. John is quite active in professional organizations; his most recent achievement was being elected vice-president of the Oklahoma Society of Professional Engineers. . . . **Karl Geiger** was named manager of the newly formed special systems department at National Research Corporation. Karl had been with the M.I.T. Instrumentation Lab until he joined NRC in 1955. . . . **Frank Heart** was special advisor to the 1966 Spring Joint Computer Conference held in Boston in April. Frank is an associate group leader at Lincoln Lab. He and Jane have three children (4, 2, and one under one), and live in Lincoln, Mass. . . . **Adolph Hendrickson** joined the Lambda Corporation in January of this year. He and Constance live in Silver Spring, Md., and have four boys. The oldest boy is a sophomore at B.U. and the next in line, Ken (17) hopes to enter M.I.T. this fall. . . . **Richard Howe** is an engineering geologist with Geo-Surveys, Inc. (soils and foundation engineers). He and Elizabeth live in Camp Hill, Pa. . . . **John Knight** is living in Baltimore, is married to the former Betty Easley, and they have three children: Ruthie 5, Annabel 3½, and John Jr. 1½, but John has neglected to tell us what his professional affiliation is. (How about another card, John?). . . . **Bob MacCallum** is still with Union Carbide, Mining and Metals Division as Marketing Manager of Foundry Products. The MacCallums live in Crestwood, N.Y., and have two young children. Flash: just received word that the MacCallums have moved to Mt. Lebanon, Pa.—why the move, Bob? . . . **Bill Maini** is a partner in Symmes, Maini and McKee, an architectural firm in Cambridge, Mass. Bill has been active in the community as Chairman of the Scholarship Committee for the Massachusetts Society of Professional Engineers and as part of the greater Boston M.I.T. Special Gifts solicitation. Bill's firm has designed an all year 'round skating rink for Lexington, Mass., a skating rink for Amherst College, a manufacturing plant for Federal Liquors, Ltd., and several banks and retail stores. Bill and Maria live in Wayland in a house of his own design. . . . **Thomas Meloy** is senior staff scientist with Allis Chalmers in Milwaukee, Wis. I had a chance to talk with Tom at a Fracture Conference a short time ago. He and Gisela still prefer Boston but he likes the responsibilities that he has at Allis Chalmers. . . . **Anthony Mirti** has been employed at Bell Aerosystems since 1958. He is presently LEM (Lunar Excursion Module) Ascent Engine Project Manager. Rose and Tony have a ten-year-old daughter and two younger sons.

This year's group of money raisers for the Institute include the following regional Alumni Fund chairmen: **Dick**

**Towill**, Honolulu; **Ed Bronstien, Jr.**, St. Paul; **Howard Levinston**, Lexington; **Irv Safer**, Norristown, Pa.; and **Paul Smith**, Caldwell, N.J.—all of whom served in the same capacity last year, and the following who are tackling it anew: **Kermit Cuff**, Palo Alto; **Elliott Cutting**, Pasadena; **John Kalvinskis**, Van Nuys/Glendale; **Bob Wedan**, St. Petersburg; **George Benson**, Charlotte, N.C.; **Chris Bolta**, Alexandria, Va.; and **Donald Kane**, Newport News. . . . **Forest Monkman** and his wife Marilyn are living in Mission, Kansas, now that Forest is director of engineering at Black, Sivalls & Bryson, Inc. where his responsibilities include company wide engineering, planning, design and administration. Forest said that with an air conditioned house, car, and office, summers aren't too bad in Kansas. . . . **Stanley Moulton, Jr.**, is chief manufacturing engineer at Hitchner Manufacturing Company in Milford, N.H. The pride of his pride: wife, Mimi, and four youngsters split two and two (boys vs. girls). . . . **Milt** and **Gay Neuman** still live in El Centro, Calif., with their three children. . . . **Albert Paine** is now with G.E.'s Instrument Department and he and Noelle live in Lynnfield Centre, Mass. . . . The **Lester Prestons** live in Richmond, Va., and have one son, Ware. Les's wife, Kitty, is an M.D. and is employed at A. H. Robbins where Les is director of scientific information. . . . **Winfield Salter** is with Parsons, Brinkerhoff, Quade, and Douglas serving as project manager on the study of the San Francisco Bay Rapid Transit System. Win received a Master's degree at Columbia in 1959 and has been in the Bay area ever since. . . . **John R. Thomas** is manager of the Advanced Development Department at Globe Battery Division of Globe-Union Inc. He joined Globe in 1959; prior to that he was with Dewey and Almy. . . . **Milton Trageser** is the associate director of the Instrumentation Lab at M.I.T. He recently spoke to the Alumni Council on "Navigating to the Moon". . . . **A. N. Tschaech** is working in the field of health physics at Atomics International. The Tschaechs live in Granada Hills, Calif., and have three children. . . . **Frank Tully** is the director of product engineering for Motor Wheel Corporation, a subsidiary of Goodyear, in Lansing, Mich. Until his promotion he had been manager of the Goodyear Tire and Rubber Company's metal products plant. The Tullies have five children and live in Stow, Ohio. . . . **Herb Woodson** was just elected to a two-year term on the executive committee of the IEEE Boston Section. Herb, as you know, is a professor at M.I.T. and is a recognized expert in the field of energy conversion and Magnetohydrodynamics.

And for my monthly "Where are they now," here are some lost souls we'd like to hear from or about: Mrs. **Eva Browder**, IX-A, last address: Yonkers, N.Y.; **Joe Connelly**, III, Oakland, N.J.; **William DiPietro**, VI, Pittsburgh; **David Esty**, I, Benghazi, Libya (should have had a drum roll on that one); **Richard Foster**, I, Cumberland, Md.; Maj. **Joseph Garvey**, XV, Norton Air Force Base, Calif. (at least we know who his employer is); and a few

more to round out the column: **W. Scott Connor**, IX-B, Toledo; **James E. Stuart**, XVIII, Endwell, N.J.; **Fred Radcliffe**, I, Ivoryton, Conn.; and **Dr. John W. Wright**, IX-A, Accokeek, Md. So, besides an address change, what's new? . . . It's now May and I hope that most of you have sent in your deposits for the reunion. If you haven't, do not waste another minute, rooms are being assigned on a first come first served basis and if you have a preference for location or proximity to specific friends send in your deposit now! Let us make this another record-setting reunion for the class of '51. Did you know that our fifth was the largest fifth ever, and our tenth was the largest of any reunion of any Institute class! Let us set another record with the fifteenth. Sun, surf, and the outer bar awaits at Chatham. . . . I'll reserve the rest of my news for next month, it has to stretch a bit; we have two more issues and you people are wicked writers—**Howard L. Livingston**, Secretary-Treasurer, 358 Emerson Road, Lexington, Mass. 02173; **Forest Monkman**, Assistant Secretary-Treasurer, 6331 Beverly Drive, Mission, Kansas.

## '52

Our Class Secretary, **Dana Ferguson**, is off circling the world—his last known stop was Pago Pago (honest!)—and this column is being rotated in the interim. Next month, **Gus Rath** will express himself from Chicago. . . . We'll start this guest column with the doctors: **Dr. Ed Margulies**, teaching surgery at the Veteran's Hospital in Albany, N.Y., and still a bachelor. Ed has been skiing and playing bridge, both championship style, both while doctoring for the Army in Germany and back in Albany for the last couple of years. . . . **Dr. Larry Krivit** is an "old-fashioned country doctor" in Monroe, N.Y. There's nothing old-fashioned about his practice though (except his bedside manner), and on a recent Sunday afternoon he handled six patients and delivered a baby. Larry's wife, Flory, helps with the office work and may be the world's best medical receptionist. Larry and Flory have a girl and a boy, a big old house, and ice skates.

**Don and Vivian Tarinelli** live in Fairfield, Conn., from which point Don operates a construction and development business. They have a boy, girl, boy, girl. They are building a winter home in Vermont for their friends' use. . . . Nearby, in Westport, are **George and Connie Jordan** (nee Zavalakes) with their four children, and George has a new business, "Cummins and Jordan Associates," management consulting (with emphasis on personnel work in general and body-snatching in particular). Business started off very successfully last year. . . . Here in Larchmont, **Bill and Jean Morton** have a new baby, Jean, which makes four. Bill has a new job within I.B.M., in World Trade, where he is concerned with computers again. Prior to that, he was engaged in business and product planning work for new industrial products. . . .

Marcelle and I have been here for two years, still have two children (girls), and I am management consulting in business planning, management controls, and special business evaluations for Lybrand, Ross Bros. & Montgomery.

Just up the road in Mamaroneck are **Jim and Didi Margolis**. Jim's company, Margolis Marketing and Research, is now in White Plains, N.Y., and consults to the chemical industry. . . . In Armonk, N.Y., are **Dan and Louise Sullivan** and family. Dan's new job is to oversee the creation of a very large hospital complex for the State of New York in Albany. Dan wanted his office to be in New York City, the State obliged, and he divides his working time between the two locations. As many of you know, the Sullivans also own and rent summer cottages on Cape Cod. . . . **Francis Hyson** is an account executive with Merrill Lynch, etc., in White Plains, N. Y. He and Mary are in Rye, N. Y. Frank tells me that he sees **Ed Facey** occasionally. Ed lives on Long Island with his wife, Febes, and teaches economics at St. John's University. In the Washington, D. C. area, Francis has visited with **Dick Carlson**, **Joe Gavin**, and **Bob Shaver**.

A little farther afield, in Caracas, Venezuela, we have **Bill and Rachel Conkright**, with two girls, two boys, the Creole Petroleum Company and assorted activities. Bill's latest position with Creole involves commercial development of new uses for petroleum and its products; prior to that, he was concerned with Creole's investment subsidiary, and sat on the boards of several of their invested-in companies around South America. Bill also teaches business to the engineers in the technical school, and engineering to the students at the University. Rachel has opened, and is operating, an art gallery.

Before leaving Lexington, Mass., we used to see a wide assortment of grubs, including **Nick and Jackie Melissas** and kids, **Bribers, Isaacs, Buchins, Arnie G.** and **Ann Kramer**, **Arnie A. Kramer** (a bachelor still, bless him), **Dick and Jane Quigley**, **Joe and Tunny Alibrandi**, **Stan and Sue Solomon**, all living in Lexington or its environs, plus, in New Hampshire, **Al and Fran Kandel**, and **Dick and Mary Lou Kilcup**. Incidentally, **Stan Solomon** is infecting solar cells at the Ion Physics part of High Voltage, and has about developed an application of high energy physics to pro football. . . . In Cambridge, on Friday evening June 10, you may have the opportunity to see many of the above contingent, plus some from New York, and a fair sprinkling from other places. Our annual Class of 1952 memorial Cocktail Party, followed by a late supper, will take place at the Faculty Club penthouse of the Sloan Building at Tech. Each year, this has been an outstanding event, with 25-50 couples in attendance. Notices will only be sent out to Boston-New York alumni but, of course, all are welcome. Nick Melissas is the man in charge. No reservation is needed to drink, beginning at 6:30 P. M. If you plan to attend the buffet dinner afterwards, in the Faculty Club, please notify Nick. Phone: (617) 969-6419. Address: 1735 Beacon Street, Newton, Mass.

**Herb and Melissa Eisenberg** are also in Lexington, in a big old house, almost big enough for their six children. Herb's architectural firm has been architecting retirement homes and such. . . . **Robert Jeffery**, in Detroit, is assistant chief engineer, in charge of advanced development for the Vickers, Inc., Division of Sperry-Rand. Bob lives in Franklin, Mich. . . . **Joseph Rubinovitz** has joined Mitre's Technical Staff in Bedford, Mass. Before that, he was with RCA in Burlington. . . . **Herbert Platt** ('52,G) has also joined Mitre, also from RCA-Burlington. . . . **Hawley Rising**, of Lexington, Mass., and also with Mitre, specializes in computer and display technology, and was recently vice-chairman of the 1966 Spring Joint Computer Conference held in Boston.

**Dave Dearborn**, now living in Brockton, is with Bethlehem Steel's Boston sales office. . . . **Edwin Kessler** ('52,G) is director, National Severe Storms Laboratory, U.S. Weather Bureau, Norman, Okla., and has been elected a Councilor of the American Meteorological Society. He is a specialist in radar meteorology (and has investigated possible application of these techniques towards development of a volcano hazard warning system). And on that note, we'll conclude our editorship.—**James W. Davidson**, 16 Cambridge Court, Larchmont, N.Y.

## '54

It is with regret that I must report the death of two classmates: **Capt. Jeffrey S. Deutsch**, XVI, and **Miguel (Mike) Cortina Santalo**, II. I have no additional information concerning Jeffrey. Mike received his masters and doctors degrees at M.I.T. He had returned to Mexico where he organized the Santalo y Cia., S. A. company which worked in the area of power plant and chemical process plant construction and design. In addition to his business activities, he taught electrical engineering at Mexican National University and was active in the M.I.T. Club of Mexico City. He leaves his wife, the former **Cristina Tamm**, and four children. . . . **George J. Bartolomei**, II, has been made the chief value engineer for Solar, a division of International Harvester in San Diego, Calif. George also serves on the National Nominating Committee for the Society of American Value Engineers. . . . **John Blair**, VI, currently an associate professor in electrical engineering at M.I.T., was an author of a recent publication in the IEEE Transactions Nuclear Science. . . . **Charles W. Burnham**, XV, of Washington, D. C., will become an Associate Professor of Mineralogy at Harvard University. Since 1961 he has been working with X-ray techniques in the analysis of chemistry and structure of mineral crystals at the Carnegie Institute. . . . **Capt. Joseph P. Goncz**, XV, recently completed a six-month ordnance officer career course at the Army Ordnance Center and School at Aberdeen, Md.

Our bachelor ranks are becoming thinner. **Bob Lait**, X, wrote to say that on



May 8 he will marry Florence Kessler, a graduate of Rice University. Bob is still with Monsanto, but is now working at Chocolate Bayou near Alvin, Texas. Bob raised the interesting question of our 25th year gift to M.I.T. (Has it been that many years?). Bob's proposal was that we donate a few dollars each year to buy a mutual fund. Then in 1979 we would have our dollars, the dividends, and hopefully some increase in value. I am sure our class officers would appreciate any reactions which you might have to the idea. In the same vein, a friend was telling me about another class where some of them have purchased endowment insurance policies to present at 25th year time. . . . **David A. Hill, VIII**, was one of three authors of an article "150 kOe Liquid Nitrogen Cooled Pulsed Flux-Concentrator Magnet" in the November, 1965 Review of Scientific Instruments. . . . **Robert C. Reid**, a professor of chemical engineering at M.I.T., had an article in a recent issue of Chemical Engineering Progress. . . . **Lee Tuomenoksa, VI**, has been promoted to head of the Electronic Switching Maintenance Planning Department at Bell Telephone Laboratories in Holmdel, N.J. . . . **Thomas Vasilos, III**, who is assistant manager of the Materials Science Department for Avco in Wilmington, was a joint author of a recent article in the American Ceramic Society Bulletin. . . . If as soon as the postman delivers this issue, you read this column, take pen in hand and write, your news should just make the last issue—still, there is always next year.—**Bob Evans**, Secretary, 43 High St., S. Acton, Mass. 01771.

## '55

It is certainly a small world in the Aerospace game. Your male reporter was standing at a telephone booth at Wolfie's Delicatessen at Cocoa Beach, Fla., in December, and who should walk in looking tired, but happy, but **Norm Ness**. There was a simultaneous "What are you doing here?" as we realized the probable answers. Earlier that morning NASA had launched the latest version in a series of satellites for measurement of magnetic fields in space. Norm is eminent in that field, and I believe that he is responsible for the NASA Program. He was tired from being up all night, but happy upon receipt of the first data from Johannesburg that everything was AOK. My own reason for being in Florida was a lot less exciting and had to do with a technical conference at nearby Patrick Air Force Base. December involved an unusual amount of travel for me. In addition to Florida, I was in the Los Angeles area at such places as the Naval Ordnance Test Station, which is just the other side of Death Valley, and Edwards Air Force Base, which is right near the town where they make 20 Mule Team Borax. Neither one was what one might call a tropical paradise. From there I went to El Paso and visited the White Sands Proving Ground, another garden spot. I didn't have an opportunity to visit with any classmates; however, it was a pleasure to

get away and meet with people who look with awe upon M.I.T. and the Boston area as the Mecca of the scientific world. It sure makes the snow, sleet and slush easier to take. . . . In March I chanced to meet **Mike Horstein** at Logan Airport as he was inbound from Los Angeles. Mike is with Hughes and has been involved in a scientific study having to do with problems in space mechanics.

**Arthur Brownlow** writes that after several years of teaching at the University of Missouri at Rolla, he, his wife Anne, daughter Jennifer (now 4), and son Allan (1) have returned to "civilization and Boston." He is now an Assistant Professor in the Department of Geology at Boston University and was the senior author of a textbook in engineering geology, which was published last summer. . . . We were very pleased to hear that **Marc Gross** has been made a partner of Ostrolenk, Faber, Gerb and Soffen in New York City. The firm specializes in patent law. . . . **Tom Marlow**, who is working in the Hydro Department of the Bechtel Corporation in San Francisco, was part of a four-man team that recently travelled to Turkey to present a report of a River Basin Plan to that government. He is now reviewing studies on a project in New Zealand, which he visited a couple of years ago and at which time he and his wife were able to see Australia. Last October Tom delivered a paper before the Annual Meeting and Environmental Engineering Conference of the American Society of Civil Engineers in Kansas City, which was co-authored by another M.I.T. graduate. His wife, Beverly, is enjoying a few hours of emancipation each day now that the girls, who are 6 and 5, are school age.—**Mrs. J. H. Venarde (Dell Lanier)**, Co-secretary, 16 South Trail, Wilmington, Del. 19803; **L. Dennis Shapiro**, Co-secretary, Aerospace Research, Inc., 130 Lincoln St., Boston, Mass. 02135.

## '57

In January the New York Times had an interesting article on the attempts of Yi Ku (we knew him as **Kyu Lee**) to reclaim his family heritage. The text was as follows: "A former prince who could be king of Korea if not for Japan's annexation of the country half a century ago is now trying to reclaim the heritage of his royal ancestors. Living in a palace of the Yi Dynasty in Seoul, Yi Ku is trying to restore to his family the control of Sukmyung Women's University, which his late grandmother and his ailing father founded in 1908. As an architect, the 34-year-old Yi Ku is interested in incorporating old Korean architectural styles into modern buildings. 'It seems to me that many people, especially the young, forget history,' he said in an interview. 'This is an old problem which we face today everywhere.' Born in Tokyo, the young Yi went to the United States in 1950. After three years at Centre College in Danville, Ky., he transferred to Massachusetts Institute of Technology, from which he was graduated in 1957 with a bachelor's degree in architecture. He

worked with the architectural concern of I.M. Pei and Associates in New York for six years until he returned to Seoul with his American wife, Julia, in 1963 to join his parents.

"His father, brother of the childless King Soon-Jong, the last monarch of Korea, who died in 1926, was taken to Japan in 1907 at the age of 10, as a hostage. Three years later, Japan annexed Korea and abolished its monarchic system, ending the Yi Dynasty that ruled the country for 518 years. Suffering from cerebral thrombosis since 1961, Yi Ku's father came home in 1963 with his wife and was placed in St. Mary's Hospital here. His condition is described as slowly worsening with no hope for recovery. President Chung Hee Park's Government provides about \$2,400 a month in living allowances and pays hospital bills for members of the former royal family, which also includes Queen Yun, 71, and Princess Duk-Heh, the king's sister, who is in a mental hospital. Yi Ku lives in Nak-Sun-Je (Mansion of Joy and Goodness) on the spacious grounds of Changduk Palace, as does the Queen. Speaking of his desire to help his country as a private citizen, he said: 'I want to devote all my efforts to teaching and practicing architecture and to helping develop a healthy education.' He works with a Manila-based American construction concern, Trans-Asia Engineering Associates, and teaches architecture at Seoul National University and Yonsei University. He also is a housing advisor to the Ministry of Construction. 'I'm quite happy with my status and profession,' he said. 'I am not interested in politics.' Whether he likes it or not, he is entangled in a highly political dispute over Sukmyung, one of Korea's two universities for women with 4130 students. It all began when the Yis returned here and claimed ownership of the school, which they lost during their long absence from the country. In 1964 the National Assembly adopted a resolution giving the Yis permission to participate in the school's management. But the school's board of trustees has resisted their efforts. Last month the Ministry of Education served notice that if the dispute was not settled soon the ministry would appoint a new board, most likely favoring the Yis. Yi Ku said the school was not being run properly and lacked facilities for experiments and had few books. 'Many schools in this country operate like diploma-producing factories,' he asserted. He said that if his family took control, he would try to raise funds from among his friends in the United States and Japan to 'give more practical education and produce quality students.' He said he also was 'very much concerned' with the preservation of old monuments and structures of Korea."—**Frederick L. Morefield**, Secretary, 457 Harris Road, Bedford Hills, N.Y. 10507.

## '58

Do you remember the spring of 1954 when most of us attended one of those M.I.T. Club dinners for prospective fresh-



men? The speaker at ours made the comment that "you would be surprised what fields M.I.T. men finally enter." He was a minister and would you believe that we didn't believe it would happen to any of us—budding scientists and engineers that we were. Well, it's happening to our class; and the news this month shows some of the diversification.

**George Crafts** has been ordained to the priesthood in Segovia, Spain, for the Opus Dei. Before beginning his studies in Rome he worked for several years at the Standard Oil Company, in Whiting, Ind. and for Monsanto in St. Louis. He has now received the degree of Doctor of Sacred Theology at the Pontifical Lateran University in Rome. Members of Opus Dei are mostly professional men who continue their profession as an aid to understanding the difficulties encountered by the people with whom they carry on their work. . . . The Air Force has assigned Captain **John Cichon** to Edwards AFB for duty with the Air Force Systems Command. John just graduated from the USAF School of Aerospace Medicine primary course at Brooks AFB, Texas. He received his M.D. degree at St. Louis University School of Medicine. John and his wife Rosemary will be headed for some interesting experiences in this new and special field of medicine.

A letter from **Vic Klemas** brings us up to date on his activities. "After working for four years on Deep Space Communications at GE Valley Forge, I received a stipend to study in Europe for two and one-half years. During that time I also managed to obtain a Ph.D. in Optical Communications and am now manager, Remote Sensor Technology at GE Valley Forge. Married a University of Pennsylvania girl and we now have one son, Andy, 2½. We just bought a home in Devon, Pa. Well, that's it!" . . . Several more letters, all prompted by Bob Jordan's recent letter. Received one from Spain from **John Connolly** where he is on a Fulbright as a lecturer in Madrid. He is on a year's leave of absence from the Mitre Corporation. He writes "I obtained my Ph.D. in Physics at the University of Illinois under Prof. John Wheatley in experimental low temperature work. While at Illinois I became very friendly with the Latin American colony there and as a result of that association I am now in Spain." . . . **Carl Schwartz** has been appointed manager—Commercial Research at Pittsburgh Chemical Company, division US Steel in Pittsburgh. He has his master's degree in business administration from New York University and has completed work on a law degree at NYU. . . . **Joseph Gal** is heading the computer analysis operations of White Weld & Company brokerage house. He was quoted in a national newspaper feature on computers and securities analysis.

While in Boston recently I was able to contact several class members and glean some news. **Paul Scott** now has his Ph.D. in Aeronautics and is an assistant professor in the department at M.I.T. He has a Ford Fellowship to help sponsor his research project. The Scotts are living in North Reading and Janet is teaching in Marblehead. . . . **Glenn** and **Kathy**

**Strehle** have a son, John Wilcox, who is now almost one year old. They are living in Boston and Glenn is still with Colonial Management Associates.

Received a letter from **Capt. John Forrest, Jr.** in Vietnam where he is serving with Advisory Team #91. "After attending the Civic Action course at Fort Gordon and the Psychological Operations course at Fort Bragg, I have been sent back to Vietnam to serve as Psyops-Civic Action-Rural Reconstruction Advisor to Binh Duong Province, just north of Saigon. Populous, wealthy and containing several important communications routes running northward, this province is one of the most important in the country and both we and the Communists know it. A good proportion of the 185 hamlets here can not be visited at all, and to visit others requires elaborate precautions. One of our most important problems is providing the US units with sufficient information and coordination for them to operate at top effectiveness. In the military field, we are sometimes asked to advise the likely behavior of local civilian populations with which the Government forces have had no contact for years except by loudspeaker aircraft and leaflets. Recently, the Viet Cong 'drafted' a large number of young men from a province south of Saigon and brought them to Binh Duong for training. The youths, although receptive to VC propaganda at home, had not volunteered to serve in the 'National Liberation Front' army, and when some artillery we fired made their captors hold their heads down, they ran away. A few found their way to one of our convoys and were quickly sent to the province capital where Vietnamese Government officials talked to them and found out that more were in hiding. We printed hundreds of thousands of leaflets with maps showing the youths where they were and how to get back to friendly territory. We dropped these and reinforced the message with aerial loudspeakers, and over the next couple of weeks, 150 showed up at our outposts, despite determined VC efforts to round them up. Similar, although smaller, coups occur almost every month. So this is an altogether different job than the one last year, because of the difference in the situation and because I, and my fellow officers, knowing more than we did before, are no longer content to strew paper over the ground and call it 'psywar,' or make mass donations of the more-or-less needed goods and call it 'civic action.' The requirements that must be met if the effort is to succeed here are tougher, but the resources we bring to bear against the problem are also greater, and the situation is not without bright spots."—**Michael E. Brose**, Secretary, 205 Pine Street, Tecumseh, Mich.; **Antonia D. Schuman**, Western Associate, 22400 Napa Street, Canoga Park, Calif.

'59

You know, after you've been away from writing Class Notes for two months, it's pretty hard to get started again. The

sheet of paper just sits there in the typewriter daring you to say anything—knowing all the time that it's going to be replaced half-a-dozen times before the first sentence is completed. I think that I'm beginning to feel the Class Secretary's fifth-year blues in the second year of the ordeal.

The one thing that can make a little brightness show through, however, is a newsy, personal letter; many thanks go this month to the mother of **John Rainey** for the very pleasant letter concerning the marriage of her son to Lenore Petrillo of West Haven, Conn. John is presently in his third year at R.P.I., working on his Ph.D. in mathematics; Lenore is a graduate of Russell Sage, and was a research assistant in biochemistry at Harvard Medical School up until the time of the wedding, which took place in February. After seeing the photo of Lenore that accompanied the letter, I can only say that I wish M.I.T.'s research assistants looked like that; Troy's gain is Boston's loss. Congratulations to the newlyweds, and thanks again to Mrs. Rainey (whose generous offer of the best chocolate cake in Arkansas is going to have to wait until I can escape ye olde Institute).

From press releases we have news of several other Fifty-niners this month. **Ronald Wempen** has been graduated from the Air Force training course for aerospace medical officers. . . . **George Glass** has left M.I.T.'s Lab of Nuclear Science to accept an appointment as a research associate at Northeastern. . . . **John Paterno** has been named a sales engineer for the Coatings and Adhesive Resins Department of Union Carbide's Plastics Division. . . . **David McGrath**, President of Associated Designers, Inc., here in Cambridge, has been elected to the Young Presidents' Organization, an educational association with an international membership of 2100 young chief executives who have become presidents of sizable companies before the age of 40. . . . Well, that worked out to be painless enough—and I didn't throw away any sheets of paper this time; under those circumstances, and assuming I get some more news, I guess I'll see you again next month. No kidding about the letters, I really do appreciate receiving them, and I'm quite certain our classmates would rather hear about you through them than through news clipping.—**Glenn Zelders**, Secretary, 3 Rose Ave., Watertown, Mass. 02172.

'60

**Dick Bradt** had an article printed in the American Ceramic Society Bulletin in November, 1965. Dick is a graduate research fellow in the Department of Materials Engineering at R.P.I. Before going to R.P.I., Dick worked with Fansteel Metallurgical Corporation in Chicago and did graduate work at the Illinois Institute of Technology. . . . **Ernest Poirer** has been appointed Quality Control and Engineering Director for the Pomona Division of Electronic Specialty Company in Los An-

geles. He was formerly director of engineering for Arwood Corporation in Los Angeles. . . . **Norm Kneissler** is working for the Arthur Anderson Company, a local management consulting firm. . . . **Daniel Y. Chin** is at Computer Control Corporation in the instruments division. New arrivals: Michael Kaplan, born on March 7 to **Dick** and **Mimi Kaplan**; this is the Kaplan's 2nd child, first boy. (Our beloved past class president.) Ernest Gerald Hurst III, born on March 9 to **Gerry** and **Polly Hurst** (our beloved class president.) Any news? Write to—**Linda G. Sprague**, 345 Brookline Street, Cambridge, Mass. 02139

## '61

The reunion is still planned for Clauson's at West Falmouth on The Cape for the week-end of June 11, 1966. As of March 15 about 130 of your classmates have indicated that they would like to come, so it looks as though the reunion will be a success (more on this later).

A couple of members of the class have "legitimate" reasons for missing the reunion. Babies are due to them in June or thereabouts, and obstetricians, being cautious men, forbid travel to the prospective fathers. A censor somewhere at the Review office prevents me from letting you know who these people are. Some other news has come my way with the reunion replies. **Paul Hogle** is keeping busy in Cleveland. He finished up some work in Statistics at Western Reserve University last June and became chief metallurgist at Cleveland Metal Abrasives; some sort of quality control and development work. Nights he slaves onward toward an MBA at Western Reserve while wife Marilyn keeps the dinner warm. . . . **John Baxter** "spent two years in the Army, mostly at Fort Huachuca, Ariz., as a 'Physical Sciences Assistant' pushing papers. Now working as a programmer for National Cash Register, Hawthorne, Calif. At Fort Huachuca I took over the desk of Lt. Rene Bertrand, whom some of us remember as a Chem. Lab (freshman type) instructor."

**Gary Fultz** "belongs" to an advanced Development Group at Jet Propulsion Labs, specializing in out of this world type things like transmission of TV pictures and telemetry. . . . **Don Graham** is back from a year and a half of teaching at old IIT (Indian Institute of Technology) in Kanpur and returns to the toil of a Ph.D. thesis at M.I.T. to be completed ("hopefully") in September. . . . **Angelo Lamola**: "after two years (since September '64) as an assistant professor at Notre Dame, I will be moving to New Jersey and will start working for the Technical Staff of Chem. and Physics of Bell Labs at Murray Hill. Teaching is just too time consuming—Bell Labs allows full time research. Daughter (Leanna) is one year old now." . . . **Millard Firebaugh** departs the hallowed halls of M.I.T. in June with two degrees firmly in tow. He gets an M.S. in E.E. and a Naval Engineer's degree. Leaving M.I.T. he enters

USN as a Lieutenant. . . . **Clarke Swanack**: "Married Kathleen Kurth (U. of Wisconsin) in Oxford, England, in June 1962. Spent two years at Oxford University for a masters in Experimental Nuclear Physics. Now working on Ph.D. at Carnegie Tech in experimental high energy physics and developing a high speed computerized spark chamber. No children, Kathy teaching elementary school and I'm racing sports cars." . . . From the far west **Gilbert Stegen** wrote that he had just married (February 4) Barbara Brooks who is a senior at San Jose College. . . . **Arthur Chen** wrote from the near east (Westgate) that two days after Christmas the Chens had a baby girl named Holly. . . . And from the Midwest **Walter Loveland** writes that he works for the Argonne Lab as a post doctoral Fellow in Nuclear Chemistry after receiving a Ph.D. from the University of Wisconsin. . . . **Randall Garriott** was married in 1962 and he and his wife, Joy, have a son, Gregory, born last August 13.

I got a pleasant letter from **Fred Schmidt** the other day. He said that he had been able to get in touch with **Bob Weimer** because this column had mentioned that Bob was in Washington. Out of gratitude Fred decided to sit down and write. "After completing my work for an M.S. in Course X at M.I.T. in June 1963, I entered active duty as a lieutenant with the U.S. Army Chemical Corps the following August as a result of an ROTC commission. Except for basic training I served my two years tour as a research contracting officer in the Pentagon. Since August 16, 1965 I have continued to serve Uncle Sam as a civilian (in D.C.). I would also like to mention the D.C. Alumni Club which provides interesting programs that take advantage of the unique opportunities available here among all three branches of our government."

For the benefit of coming generations it behooves us to set forth here some of the pertinent data about the activities of the Reunion Committee. About half way through the summer various people living around Boston received an innocuous phone call from **Tom Hastings**. They should have hung up, but being pleasant people all, they listened to his sad story. It seemed that Tom had been tapped by higher powers and told that the reunion would be from Friday June 10 to Sunday June 12 and that the rest was up to him. He needed help. Enticed by the promise of free beer and pretzels they met and prepared a grand plan for the following six months. The beer brought out the philosopher in the M.I.T. man. Someone suggested that reunions can be fun. There was some controversy on this subject but in the end it was agreed that under some conditions they can be quite pleasant. One condition was that enough people come. This way there is a pretty good chance that someone you know will be there. Another condition was that there be something else to do beside yucking it up with the boys. Clauson's seems to fit the bill with its tennis, golf, swimming, boating, etc. Continuing with philosophy: It was clear that if this reunion was

a bust there wasn't going to be much hope in the future. Word would get around and just the gung-ho types would appear every five years. There aren't many gung-ho types in M.I.T. A major effort to bring out the troops was going to be required. So, biting their collective finger nails the committee got down to work.

By what can only be called a major miracle, those plans of last summer have been fairly well followed. Three mailings to the class have gone out, more or less on schedule, one in October to get an idea of how many people were coming, another in February (which included a list of class members showing interest) to keep the class informed, and a final call to the whole class in March. Finally a smaller mailing to those showing interest went out in April. Class dues of five dollars were requested in the class mailings and about 65 checks (up to March) came in, making the mailings self supporting. Early in March another approach was taken, to encourage the more reticent among the class to come. Fifty Select people were contacted to telephone about 300 other classmates to see whether they could be "pressured" into coming. The whole group of 350 was selected (by Tom Geers) because of their proximity to the Cape. The select 50 were told that they could get a refund of their class dues to defray the cost of telephoning. Each of the 50 was asked to call about five of their friends in the class and they were provided with addresses to make it easier to track them down.

How this all worked out will become clear in about a month. The hope is that about 150 class members will come. That's about half the number that can come and would represent (historically) a very good turn out. The new class secretary will inform you of the success or failure of these hopes.—**Andrew Braun**, Acting Secretary, 1038 Beacon Street, Brookline, Mass. 02146

## '62

I received a card the other day announcing the opening of an architectural office here in Honolulu by one of our classmates, **Harry T. Miyachi**, A.I.A. I am certain that I speak on behalf of all the members of the class in wishing Harry complete success in his endeavor. . . . **Bob Wilhelm** writes that he is working as an economic analyst in the Coordination and Planning Department of Standard Oil Company of New Jersey. His work involves evaluation of the economic and technical implications of Jersey's worldwide investments. Bob is single and is enjoying life in New York City. He met **Tom Ambler**, who is living in White Plains and is the father of two children. I understand that **Max Snodderly** is also in N.Y.C., but I don't know what he's up to.

That's about all the news I could scrape up this month, so I guess I'll continue my Hawaiian travelogue at **T. G. Lageman's** request. My wife and daugh-



ter and I traveled to two "neighbor islands" in February. First we went by Cessna to Lanai, a relatively small island totally owned by Dole Corporation and used exclusively for growing pineapple. It's a place the tourists seldom see and has some interesting topography that looks like a moonscape, wild goats, and Shipwreck Beach with wrecks from WWII. Then we traveled to the biggest of the five major islands, Hawaii. It is an island of contrasts, with one of the largest cattle ranches in the U.S., thousands of acres of desert, a snow-capped mountain, and the U.S.'s only active volcano. We stayed in Kona, an area noted for its serenity and opportunities for marlin fishing. Then we drove to the Mauna Kea Beach Hotel, a fabulous hotel and golf course built by Laurence Rockefeller. The hotel is an architectural delight and is filled with rare artifacts from all over the world. There are only 200 rooms; hardly enough to justify the fantastic investment, which amounted to \$100,000 per room, even at the going rate of \$45 a night for a single room. It's booked about four months in advance, however, and always sports a star-studded guest list. Then we went to the sugar plantations owned by Castle & Cooke. Next down the beautiful Hamakua Coast to the city of Hilo, noted for its orchids and plentiful rainfall. And lastly to the eerie volcano area, scene of several recent eruptions, and to the Royal Hawaiian Macadamia Nut Company operations. When the volcano erupts, everyone who can get on an airplane and travels to the area to view the eruption from the ground or from an airplane. The devastation caused by the lava flows of the past can be seen in many areas and I understand the people in Hilo have a difficult time

obtaining FHA home mortgages because of the ever-present threat of volcanoes and tidal waves. The neighbor islands have been losing population to Oahu, but the tremendous growth of the tourist industry has done much to bolster their economies. All in all, no trip to Hawaii is complete without a venture to the outer islands. . . . Please write soon—I'm running out of islands.—**Jerry Katell**, Secretary, Oceanic Properties, Inc., 401 Kamee St., P.O. Box 2780, Honolulu, Hawaii 96803

volved in designing the structural framework of the whale. . . . **John Tytus** is with the Army in Germany working on missiles and radar. . . . It is my pleasure to announce that I was married to Miss Julia Wheaton Keyes of Coral Gables, Fla., on April 6. We are now at Aberdeen Proving Ground in Maryland, where I am beginning my Army active duty. Until I know my permanent duty station, send any news or letters to me at this address: **Bob Johnson**, Secretary, 1089 N.E. 91 Terrace, Miami, Fla. 33138.

## '63

This month's letter comes from **Paul Berger**. He writes: "Since leaving M.I.T. I have been working for a Ph.D. in Applied Physics at Harvard. I was married to Eleanor Durkin of Salem, Mass., on July 10, after which we toured Europe. . . . Around Harvard I have run into the following '63 grads: **Steve Benton** is working for a Ph.D. in Applied Physics, **Floyd Stecker** is working at the Smithsonian Observatory toward a Ph.D. in astronomy. He was recently married to Dorothy Bick of Watertown, Mass. **Jim Keenan** is at Harvard working on his Ph.D. in Applied Physics."

**Lewis Shulman** recently received his M.S. in Aerospace and Mechanical Sciences at Princeton. . . . **Robert Efimba** is working on a project that Burns and Roe, Inc. has undertaken for the American Museum of Natural History in N.Y.C. He is trying to determine whether a giant 13-ton model of a blue whale can be suspended from a single point of the museum's roof. He also may become in-

## '64

The news this month consists entirely of notices from the clipping service: **C. J. Boardman** and **H. L. Van Trees** wrote an article entitled "Optimum Angle Modulation" in IEEE Trans. on communication technology. . . . **John Sheehan** and **Karl Brandt** published an article in the Journal of the American Chemical Society entitled "A Novel Cleavage of the Penicillin Nucleus." . . . **Paul Croce** was author of "Shock Tube Induction Flowmeter" in the July issue of The Review of Scientific Instruments. . . . **Robert Porter** has joined the Mitre Corporation's technical staff. Mitre is an independent, systems engineering corporation formed in 1958 to provide technical advice and support to several government agencies. . . . **H. C. Praddaude** wrote an article on the "Sweep of Low Impedance Iron Core Magnets Down to Zero Field" in the Review of Scientific Instruments. Further news is welcome.—**Ron Gilman**, Secretary, Dane Hall 102, Cambridge, Mass. 02138.

## Chairman, Places, and Dates for M.I.T. Class Reunions This Spring

1906: Charter House Motor Hotel, Cambridge, Mass., June 12.

1911: Reunion Chairmen: **Morris Oman-sky**, 9 Babcock St., Brookline, Mass.; **Oberlin S. Clark**, 50 Leonard Rd., N. Weymouth, Mass.; **Hotel Sheraton**, Boston, Mass., June 11-12.

1915: Class Cocktail Party. M.I.T. Faculty Club, June 13, 4:00 P.M.

1916: Reunion Chairman, **Thomas D'Arcy Brophy**, 470 Park Ave., New York, N.Y. 10022; **Oyster Harbors Club**, Osterville, Mass., June 10-12.

1921: Reunion Chairman, **Melvin R. Jenney**, 9 Meadowview Rd., Melrose, Mass.; **Griswold Hotel and Country Club**, Groton, Conn., June 9-12.

1926: Reunion Chairman, **Donald S. Cunningham**, Hersey Sparling Meter Company, Box 31, Dedham, Mass.; **Belmont Hotel**, West Harwich, Mass., June 10-12.

1931: Reunion Chairman, **Kenneth Gerneshausen**, 240 Highland St., Weston, Mass.; **Wianno Club**, Osterville, Mass., June 10-12.

1936: Reunion Chairman, **Frank R. Ber-man**, 2 Eagle Hill Ct., Huntington, N.Y.; **Curtis Hotel**, Lenox, Mass.; June 11-12.

1941: Reunion Chairman, **John H. Macleod, Jr.**, 376 Ocean Ave., Marblehead, Mass.; **Baker House**, M.I.T. Campus, June 9-14.

1946: Reunion Chairman, **Theodore Henning**, 32 Woodedge Rd., Manhasset, N.Y.; **Provincetown Inn**, Provincetown, Mass., June 10-12.

1951: Reunion Chairman, **Fred W. Aldrich, Jr.**, 39 York St., Lexington, Mass.; **Chatham Bars Inn**, Chatham, Mass., June 11-12.

1956: Reunion Chairmen: **William S. Grinker**, 21 Woodward Rd., Framingham, Mass.; **Martin H. Reiss**, 20 Peterson Rd., Natick, Mass.; **Wychmere Harbors Club**, Harwichport, Mass., June 10-12.

1961: Reunion Chairman, **Thomas Hastings**, 18 Frost St., Cambridge, Mass.; **Clauson's Inn and Country Club**, North Falmouth, Mass., June 10-12.



## Club News



### Washington Club Continues Monthly Events

The first technical seminar in the Washington Club's continuing education program was held on February 26, with 300 members and guests participating. By any standard the seminar was a resounding success. Dr. Charles Townes, M.I.T. Provost and Nobel Laureate, and Dr. Robert Malt of Harvard Medical School and Massachusetts General Hospital led the discussions. A spirited response from the floor highlighted the question and answer period. Pulsed and CW lasers were shown along with a hologram of the surface of the moon.

The March 17 dinner meeting was addressed by the Honorable Weston Vivian, '47, Congressman from Michigan. The event was held at the new Washington Hilton Hotel in conjunction with the alumni clubs of the Harvard Business School, Harvard College, and the University of Michigan. Congressman Vivian's subject was the Future of Research and Development.

The April 28 dinner meeting at the Cosmos Club featured Dr. John P. Craven, Project Manager of the U.S. Navy Deep Submergence Systems Project. Dr. Craven discussed advances in the field of submersible vehicles commenting especially on the experiences gained from the Sea Lab II Project.

The final event of the 1965-1966 year will be the annual cocktail party to be held in late May or early June. The date and location of the cocktail party will be announced at a later time.—Dan R. McConnell, '61, Technology Review Correspondent, 4134A Suitland Road, Suitland, Md. 20023.

### Albuquerque Alumni Hold Annual Meeting in February

The annual dinner of the M.I.T. Club of New Mexico held in Albuquerque February 12 provided a most enjoyable get-together for Ted and Dot Alexander, '32, George (our President) and Norma Bradley, '49, Bill and Irma Caskey, '56, Roxy and Lucille Ernsberger, '58, Fred and Frances Magee, '48, Bill and Bets Peritt, '30, Ben and Elizabeth Powell, '23, Bob and Lucille Quinlan, '30, Tim and Florence Raftery, '31, Bob and Nancy Riley, '54, Ted and Letty Saville, '60, with their guests, Captain and Mrs. Robert Dorr, USAF, Ed and Willie Servis, '51, all of Albuquerque, plus Carter and Rawls Bennett, '42, down from Las Vegas with their guests Dr. and Mrs. Robert Cuthrell, Will and Elna Boyer, '20 from Sante Fe, and Les and Helen Redman, '47, of Sante Fe and Los Alamos. All were happy to greet the recently arrived Ernsbergers. He is enrolled in graduate studies at the University of New Mexico.—T. D. Raftery, Acting Secretary.

### Quebec Group Hears About Canada's World's Fair

The M.I.T. Club of Quebec elected a new slate of officers for the year 1965-66 at its meeting at the St. James Club of Montreal last November 23, 1965. Mr. D. P. Severance, Executive Vice-President of the Alumni Association, gave a most interesting talk on the latest progress and developments at the Institute. The new Executive is as follows: Jean M. Raymond, '34, Honorary President; Ralph H. Berman, '46, President; Gerald G. Fisch, '50, Vice-president; Gilles G. Henault, '60, Treasurer; Raymond H. Danon, '58, Secretary.

The group held a meeting on March 28 in which one of the top officials from EXPO '67, Canada's World's Fair, spoke on the topic of "Planning and Development of EXPO '67."—Raymond H. Danon, Secretary.

## Sloan Fellows

**Robert P. Hendrichs**, '56, has been promoted to plant manager of the Bedford, Ind., plant of General Motors Corporation's Central Foundry Division. He was previously plant manager of the Malvern, Ark., plant.

**Edward H. Carman**, '59, has been appointed director of special markets sales development at Eastman Kodak Company. His most recent position with Eastman Kodak was that of manager of marketing agreements. . . . **George E. Ganter**, '65, has been named a technical representative for the Coatings and Adhesives Resins department of Union Carbide Corporation's Plastics Division. He will work out of the Detroit office.

### High Speed Ground Travel Discussed in Rochester

On March 3 Dr. S. William Gouse, Associate Professor of Mechanical Engineering at M.I.T., discussed high speed ground transport systems at the M.I.T. club meeting in the University Club of Rochester. His comprehensive talk outlined the "systems approach" taken by the M.I.T. interdisciplinary study group in attacking technological and social aspects of future travel in the Northeast Corridor, which runs from Portland, Maine, to below Washington, D.C. Club members enjoyed learning about the "Guideway" proposal made by M.I.T. graduate students. This proposal has received public notice recently, and Professor Gouse indicated that it was an example of what can result from new learning situations at M.I.T., where students work on pressing research problems at the same time they are studied by the staff.

The Rochester Club had a number of guests, including managers from the Rochester Transit Corporation and the General Railway Signal Company. Representatives of the University of Rochester mechanical Engineering Department and members of the Transportation Department of the Rochester Chamber of Commerce also attended. Civil and mechanical engineers from the Rochester Engineering Society were invited.—W. Blake Foster, Secretary.

### Report on Inner-belt Highway Given at February Council Meeting

At the February meeting of the M.I.T. Alumni Council, O. Robert Simha, '57, M.I.T. Planning Officer, brought Council members an up-to-date report on the progress and background of the controversy concerning the route of the proposed inner-belt highway through Cambridge. Coming directly from a session of the Cambridge City Council, Mr. Simha was able to present last-minute information to his M.I.T. audience.

At the Alumni meeting, Samuel A. Groves, '34, President of the Alumni Association, paid tribute to the late Alfred P. Sloan, Jr., '95. Speakers included James L. Veilleux, '66, who presented a pictorial narrative, "A Student's View of M.I.T.," and Professor Herbert M. Teager, '52, who spoke on "The Coming New Breed of Computers."

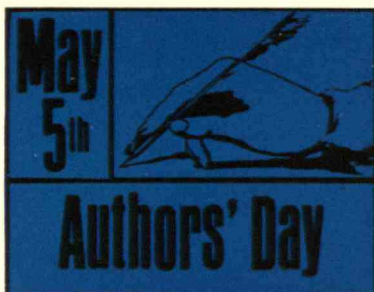
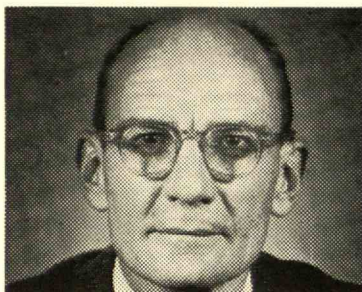
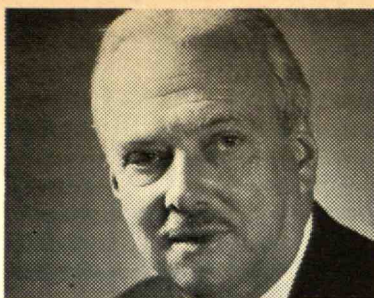
## Changing Your Address?

If you are moving, please let us know five weeks before changing your address. Attach address label from your magazine to this coupon, giving us your new address below, and send it to Alumni Association, M.I.T., Room E19-439, Cambridge, Mass. 02139.

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**Memo Re:** Authors' Day

**To:** M.I.T. Alumni

**From:** The M.I.T. Press and Tech Coop

**Place:** The Tech Coop, M.I.T. Student Center

**Date:** May 5

We call your attention to the Authors' Day program when we join the M.I.T. Press in saluting its authors.

**Luncheon:** You're invited to attend a special luncheon at the Sala de Puerto Rico in the Student Center, 12:15 p.m. Tickets are available at the Tech Coop.

**Speakers:** Speakers will be three Press authors: Professor Paul Samuelson, whose latest book is "The Collected Scientific Papers of Paul Samuelson" (two volumes), will speak on "The Scientists Take Over". Dean Emeritus John Burchard, author of "The Voice Of The Phoenix: Post-War Architecture in Germany", will speak about "Rebuilding Germany: Tradition or Redemption?". Professor Elting Morison, author of the forthcoming "Men, Machines and Modern Times", has chosen "Progress and Pain!" as the topic of his speech.

**Reception:** Following the luncheon, at 2:30, plan to join the authors for a reception in the Book Department at the Coop.

**Free Books:** If you're in the Boston area, you can take advantage of these events, and the special sale in effect during Authors' Day only. Purchasers of one or more M.I.T. Press books will receive their choice of a free M.I.T. Press paperback valued up to the amount of purchase. There are 48 M.I.T. Press paperback titles to choose from, and 400 titles in all.

Hours: 8:50 a.m. to 5:30 p.m.



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**See for yourself . . .** drop in at booth #394 at the Design Engineering Show, where the entire line of GR stroboscopic equipment will be on display and in operation — take a good look at what the flashing light can do for you. If you can't get to the Show, write for the Stroboscope Bulletin for complete information.

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